

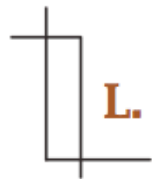


Labor Market Analysis San Francisco Construction Industry

Final Report
October 18, 2010



Prepared by



L. Luster & Associates



**MICHAEL
BERNICK**



CORDOBA CORPORATION
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L. Luster & Associates

October 18, 2010

Mr. Fred Blackwell, Executive Director
San Francisco Redevelopment Agency
One South Van Ness Avenue, Fifth Floor
San Francisco, CA 94103

RE: Final Report - Labor Market Analysis
San Francisco Construction Industry

Dear Mr. Blackwell:

On behalf of Michael Bernick, Cordoba Corporation, Davillier-Sloan, Inc. and L. Luster & Associates, it is my pleasure to deliver this Final Report of the Labor Market Analysis of the San Francisco Construction Industry (Final LMA Report).

In May of this year, the San Francisco Redevelopment Agency in partnership with the Office of Economic and Workforce Development, the Public Utilities Commission, and the Controller's Office of Economic Analysis selected our team to perform a Labor Market Analysis of the Construction Industry in San Francisco. The purpose of the study was to determine the efficacy of local hiring policies and to inform workforce development activities. The L. Luster Team, which also includes Dr. Michael Potepan of San Francisco State University and Ash Golani, a local construction management professional, set out to complete a 12 month long, comprehensive examination of the local construction industry.

However, happening simultaneously, members of the Board of Supervisors signaled their intention to revise San Francisco's Local Hire Policy to include mandatory rather than good faith effort requirements on City and County sponsored projects. As a result, the pace of the study was accelerated and the scope was compressed. The L. Luster Team was asked to complete the main body of its work within eight weeks and to prepare a presentation for a San Francisco Local Hire Stakeholder Planning Process. On August 2nd, the L. Luster Team presented its preliminary findings to the stakeholder group. The feedback from the group indicated that the data and presentation were extremely informative. The effort provoked frank and constructive discussions among the stakeholders, and has made a significant contribution to the local hire stakeholder planning process.

This Final LMA Report examines the San Francisco construction sector from two perspectives and presents key data useful to policy and workforce planning. It provides an update of the nature and characteristics of the skilled trades workforce: numbers, demographics, main trade areas, and current levels of participation on City and County sponsored projects. Secondly, it takes a look at the demand side of the industry by providing workforce projections for all skilled trades based on the City and County 10-Year Capital Plan. In addition, the Final LMA Report includes the findings of a survey of fourteen publicly administered local hire programs that illustrate the strategies other public entities are employing to generate jobs for local residents.



L. Luster & Associates

The Final LMA Report data and findings offer a baseline guide for policy and workforce planners. San Francisco's construction industry, like all economic sectors, is continually shifting and is influenced by many factors. It is an old sector with complex workforce structures. The Team hopes that this work will be useful in helping the City to generate policy and workforce activities that meet local worker needs, are responsive to actual sector conditions, and align with the dynamic nature of the sector.

The L. Luster Team thanks the San Francisco Redevelopment Agency, Office of Economic and Workforce Development, the Public Utilities Commission and all other project partners for the opportunity to complete this analysis and contribute to the public discourse on local hire and workforce development. We look forward to any feedback and comments you may have.

Sincerely,

Laura Luster, Ph.D.
Principal

Table of Contents

Executive Summary	4
Section 1: The Economic Backdrop: Construction Employment in California and the Bay Area During the Current Recession	11
Section 2: Characteristics of the San Francisco Construction Workforces	14
<i>A. Characteristics of Construction Workers Whose Primary Workplace is San Francisco</i>	14
Trade Distribution	14
Ethnic and Gender Distribution	15
Residency Distribution	17
Earnings	18
<i>B. Characteristics of Construction Workers Resident in San Francisco</i>	18
Trade Distribution	18
Ethnic and Gender Distribution	19
Age Distribution	20
Residency and Place of Employment	21
Earnings Distribution	22
<i>C. Characteristics of Apprentices Resident in San Francisco</i>	23
<i>D. City and County of San Francisco Craft Union Employees</i>	26
<i>E. Construction Workers Employed on San Francisco City and County Capital Projects</i>	29
Section 3: Construction Jobs Projected to Be Generated by the City and County 10-Year Capital Plan	35
<i>Input-Output Models and Job Projections of Capital Projects</i>	35
<i>Going Beyond IO Models: Project by Project Job Projections Undertaken by the Research Team</i>	36
<i>Distribution by Trade</i>	38
Section 4: Local Hire Programs and Project Labor Agreements	42
<i>Traditional Local Hire Programs</i>	42
<i>PLA Embedded Local Hire Programs</i>	43
<i>Other Findings</i>	44
<i>Penalties for Contractors</i>	44
<i>Performance Outcomes</i>	44
Section 5: Policy Issues Regarding Local Hire Raised by the Research Findings	46
<i>Worker Demand and Local Hire</i>	46
<i>Worker Supply. Participation of SF Residents on City and County Projects and Local Hire</i>	46
<i>City Infrastructure to Expand Workforce Pipeline</i>	46
<i>Gender Imbalance and Local Hire</i>	47
<i>Worker Mobility and Local Hire</i>	47
<i>Sustainable Employment and Local Hire</i>	47
<i>Union Membership and Local Hire</i>	48
<i>Project Labor Agreement (PLA) Impacts and Local Hire</i>	48
<i>Trade Distribution and Local Hire</i>	48
<i>Closing</i>	48

Appendices

<i>Appendix A.</i>	<i>Construction Workforce Employed in SF by Gender and Race for all Trades</i>	<i>51</i>
<i>Appendix B.</i>	<i>SF Resident Construction Workers by Gender and Race for all Trades</i>	<i>52</i>
<i>Appendix C.</i>	<i>SF Resident Active Apprentices for all Trades</i>	<i>53</i>
<i>Appendix D.</i>	<i>Weeks Worked Per Year and Weekly Hours of SF Resident Construction Workers Earning Less than \$30,000</i>	<i>54</i>
<i>Appendix E.</i>	<i>City and County SF Craft Union Employees for all Trades</i>	<i>55</i>
<i>Appendix F.</i>	<i>SF Resident Journey Persons and Apprentices Working on City & County Projects by Hours for All Trades Hours</i>	<i>56</i>
<i>Appendix G.</i>	<i>List of San Francisco Capital Projects Used for Workforce Projections</i>	<i>57</i>
<i>Appendix H.</i>	<i>Methodology for US Census/American Community Survey and State of California Employment Development Department (EDD) Data</i>	<i>59</i>
<i>Appendix I.</i>	<i>Methodology for City and County Web-based Certified Payroll Tracking System Data</i>	<i>60</i>
<i>Appendix J.</i>	<i>Methodology for Workforce Projections</i>	<i>61</i>
<i>Appendix K.</i>	<i>Methodology for Local Hire Program</i>	<i>63</i>
<i>Appendix L.</i>	<i>References</i>	<i>64</i>

Table of Figures

Chart 1: Declining Construction Jobs in California	11
Chart 2: Declining Construction Jobs in San Francisco, Marin and San Mateo Counties	12
Chart 3: Distribution of Construction Workforce Employed in San Francisco by Trades	15
Chart 4: Ethnic and Gender Distribution of Construction Workforce Employed in SF	15
Chart 5: Ethnic and Gender Distribution of SF Population	16
Chart 6: Construction Workers Employed in SF by County of Residence	17
Chart 7: Earnings of Construction Workers Employed in SF	18
Chart 8: SF Resident Construction Workers by Trade	19
Chart 9: SF Resident Construction Workers by Ethnicity and Gender	20
Chart 10: SF Resident Construction Workers by Age and Ethnicity/Race	21
Chart 11: SF Resident Construction Workers by County of Employment	22
Chart 12: SF Resident Construction Workers Earnings	22
Chart 13: SF Resident Apprentices by Ethnicity and Gender	23
Chart 14: SF Resident Active Apprentices by Trade	24
Chart 15: SF Resident Apprentices, 2000-2010	25
Chart 16: SF Resident Apprentices Intakes Compared with CityBuild Academy Placements	26
Chart 17: City and County of SF Craft Union Employees by Trade	27
Chart 18: SF Craft Union Employees by Ethnicity/Race	28
Chart 19: SF Craft Union Workers by Age, FY 2009 - 2010	29
Chart 20: Journey People and Apprentices Working on SF City and County Projects by Residency & Hours	30
Chart 21: Journey People Working on City and County Projects by Highest Demand & Hours	31
Chart 22: Highest Percentage of SF Resident Journey Hours by Trade Working on City and County Projects	32
Chart 23: Apprentices Working on City and County Projects by Trades in Highest Demand and Hours	32
Chart 24: Highest Percentage of SF Resident Apprentice Hours by Trade Working on City and County Projects	33
Chart 25: SF Resident Apprentices Working on City & County Projects by Zip Code and Approx. Counts	34
Chart 26: SF Resident Journey Persons Working on City & County Projects by Zip Code and Approx. Counts	34
Chart 27: Capital Projects in SF Spending Plan Used for Workforce Projections	37
Chart 28: Workforce Projections Estimated Journey & Apprentices Annual Labor Hours, FY 2011-2020	38
Chart 29: Workforce Projections Estimate Journey & Apprentices Annual Full Time Equivalents, FY 2011-2020	38
Chart 30: Workforce Projections by Trade Annual Labor Hours, FY 2011-2020	39
Chart 31: Workforce Projections by Trade Full Time Equivalents, FY 2011-2020	40
Chart 32: Workforce Projections for Highest Demand Trades Journey and Apprentice Hours Fiscal Years 2011-2020	41
Chart 33: Workforce Projections for Highest Demand Trades Journey and Apprentice Full Time Equivalents, FY 2011-2020	41
Chart 34: Local Hire Programs Not Utilizing a PLA	43
Chart 35: Local Hire Programs Utilizing a PLA	43



Executive Summary

Executive Summary

Overview of Research Efforts

The City and County of San Francisco has devoted considerable resources towards developing employment strategies for industries with the potential to generate sustainable jobs for San Francisco residents, particularly those who are economically disadvantaged. Historically, the City and various community advocacy groups have viewed the construction sector as an important avenue for local resident employment. The San Francisco Redevelopment Agency has sponsored construction employment programming for more than twenty years in its various projects areas. Likewise, the Office of Economic and Workforce Development operates CityBuild, its construction workforce program that includes a pre-apprenticeship Academy, serves as the City's First Source Administrator and refers San Francisco residents to construction jobs on City sponsored projects.

Despite inroads into the construction sector, the hiring of San Francisco residents especially from poorer neighborhoods remains a controversial issue. As the San Francisco Redevelopment Agency noted in the Request for Proposal for this Labor Market Analysis, "Over the last two years...Redevelopment Project sites, particularly in the Southeast, have experienced a number of labor disputes resulting in picketing, work stoppages and near violence, largely as a result of community outrage in response to perceived and real unmet local hire goals on several construction projects."¹

In February 2010, members of the Board of Supervisors signaled their intention to introduce legislation to revamp San Francisco's Local Hire ordinances (Chapters 6 and 83 of the Administrative Code) pertaining to City sponsored construction projects; to shift to mandatory hiring requirements rather than requirements based on good faith efforts. In June, a series of Local Hire Stakeholder Planning Process meetings was initiated to engage a range of stakeholders in determining how best to strengthen San Francisco's local construction hire policies and practices, and to inform the development of mandatory local hire legislation.

The Labor Market Analysis was designed to provide construction industry specific data and information useful for assessing citywide local hire options. This Final Labor Market Analysis Report (LMA Report) prepared by L. Luster & Associates, Michael Bernick, Cordoba Corporation, Davillier Sloan, Inc., Michael Potepan, and Ash Golani draws from a wide range of data sources. The report is organized into five sections and appendices.

Section 1: The Economic Backdrop: Construction Employment in California and the Bay Area During the Current Recession.

Section 2: Characteristics of the San Francisco Construction Workforces: Examination of the Construction Workforce Employed in San Francisco, the Construction Workforce Resident in San Francisco, the Construction Workforce Employed by the City and County of San Francisco, and the Construction Workforce Employed on City and County of San Francisco Projects.

¹ San Francisco Redevelopment Agency. *Request for Proposals, Project Labor Analysis*. 22 February 2010: 3

Section 3: Projections of Construction Jobs to Be Generated by the City and County of San Francisco 10-Year Capital Plan.

Section 4: Local Hire Programs and Project Labor Agreements: Local Hire Programs in northern and southern California, Cleveland, Ohio and New York City, including those operating in conjunction with Project Labor Agreements.

Section 5: Policy Issues Regarding Local Hire Raised by the Research Findings: Discussion of worker demand, worker supply, City construction workforce pipeline, gender imbalance, worker mobility, sustainable employment, union membership, project labor agreements, and trade distribution.

The data sources utilized in the analysis include the following:

- *US Census/American Community Survey, 2006-2008*
- *State of California, Employment Development Department, Industry Employment & Labor Force Data, 2000-2010*
- *State of California, Department of Industrial Relations/Division of Apprenticeship Standards, 1999-2010*
- *City and County of San Francisco, Project Data (Online City Payroll System), July 2009-July 2010 (13 months)*
- *City and County of San Francisco Capital Plan, Fiscal Years 2011-2020*
- *Survey of project labor agreements and local hiring policies/programs within and outside San Francisco Bay Area*
- *Mulligan-Hansel, Kathleen, Ph.D., Making Development Work for Local Residents – Local Hire Programs and Implementation Strategies that Serve Low-Income Communities, The Executive Summary, The Partnership for Working Families, July 2008*
- *“Demographics of the Construction Industry in San Francisco”, Ted Egan, January 7, 2010*
- *“An Overview of San Francisco’s Recent Economic Performance – Executive Summary,” ICF Consulting, April 3, 2006*
- *San Francisco’s Economic Performance: Outcomes, Markets, Workforce, and Small Business,” Ted Egan and Bill Lester, ICF Consulting, (PowerPoint Presentation), April 3, 2006*
- *United States Department of Labor, LM-2 Labor Organization Annual Report, 2009*
- *City and County of San Francisco, Department of Human Resources, Workforce Development, 2009*

Summary of Findings

(1) Economic Backdrop: Construction Employment in California and the Bay Area:

The construction workforce statewide has been in a free-fall of job losses for the past four years. In August 2006, statewide there were 966,300 construction jobs. By March 2010, construction employment had fallen to 556,100 payroll jobs, and to 543,000 payroll jobs in the most recent August 2010 state jobs report.

The Bay Area construction workforce has not been as hard hit. Nonetheless, it still has seen significant job loss. San Francisco is counted by the State Employment Development Department (EDD) as part of a tri-county Metropolitan District, along with San Mateo and Marin Counties. The District had 45,100 construction jobs in August 2006, and had lost nearly one-third of these jobs falling to 31,200 construction jobs by May 2010. Although anecdotal in nature, representatives from union locals participating in the Local Hire Stakeholder Planning Process reported unemployment rates above 25% in their local halls. In San Francisco, unemployment in the construction sector has had a particularly negative impact on the city's less educated residents. For them, construction has provided access to higher paying jobs in a labor market that otherwise might provide them access mainly to positions paying lower end wages. Any local hire effort will be undertaken against the backdrop of this unprecedented construction job loss, and resulting unemployment among the existing San Francisco construction workforces.

(2) *Characteristics of the San Francisco Construction Workforce:*

The San Francisco construction workforce is most accurately seen not as one workforce but as five main workforces: (A) the construction workforce employed in San Francisco, (B) the construction workforce resident in San Francisco, (C) the construction apprentices resident in San Francisco, (D) the construction workforce employed on City and County capital projects, and (E) construction workers employed on San Francisco Capital Projects.

A. *Construction Workers Whose Primary Workplace is San Francisco (14,629 workers):* The construction workforce of workers who list their primary workplace as San Francisco totals 14,629 workers as of June 2010. Of these workers, 39% (or 7,855) are San Francisco residents, though given the mobility of the Bay Area workforce, the other counties are well represented. Five trades dominate the construction workforce, headed by Carpenters at 4,623 workers, Laborers, 2,796 workers, and Painters 1,459 workers. The workforce has a significant level of ethnic diversity, with Latinos as the largest group at 40% of the workforce, followed by Whites at 39%, Asian & Pacific Islanders at 17%, and African Americans at 3%. The gender diversity, though, is far more limited with women making up only 3% of the construction workforce. The earnings of the workforce vary widely, though a significant portion of the group, nearly 33%, report earning less than \$30,000 per year.

B. *Construction Workers Resident in San Francisco (7,855 workers):* The construction workforce resident in San Francisco, 7,855 employed workers in June 2010, shares a number of the characteristics of the construction workforce employed in San Francisco. The workforce is divided among multiple trades, with Construction Laborers as the main trade, followed by Carpenters. The workforce is diverse ethnically, with Whites, Latinos, Asian & Pacific Islanders, and African Americans comprising 34%,

31%, 30%, and 5% respectively. However, gender distribution is very limited at the same 3% of the workforce for women. The great majority (77%) of the construction workers resident in San Francisco also work in San Francisco. Of note, 23% of these San Francisco resident workers are already 55 and older and another 24% are between the ages of 45 and 54. The earnings of the workforce are generally below those of the workforce employed in San Francisco, with slightly over 50% reporting earnings of less than \$30,000. The notable aging of this resident workforce will create significant opportunities for new entrants over the next twenty years. The significant percentage of low wage earners among resident construction workers signals a pool of incumbent workers that could be tapped for local work and that would greatly benefit from opportunities created on public sector projects.

- C. Construction Apprentices Resident in San Francisco (1,087 active apprentices): An important subset of the San Francisco resident workforce is the resident apprentices—the younger workers who are entering the construction field and enrolled in formal, and near unanimously union-based, training programs. As of June 2010, there were 1,087 active apprentices who were residents of San Francisco. Ethnic diversity among this workforce was high: Latino, 27%, African American, 26%, Asian, 23%, and White 22%. Women were slightly better represented among apprentices than among the other San Francisco workforces, but still at only 10%. Like their journey counterparts, San Francisco resident apprentices are concentrated in five main trades. Carpenters account for about 39% of all San Francisco resident apprentices, followed by Electricians at 11%, Plumbers at 8% and Roofers at 6%. The remaining 36% are spread out among the other skilled trades. Three things of note: 1) the number of SF resident apprentices has been in a general decline since 2000, even in the years prior to the current recession, although why this is the case is not entirely clear; 2) CityBuild Academy has been steadily contributing San Francisco resident apprentices and by 2009 accounted for approximately 44% of the new San Francisco resident apprentice intakes; and 3) CityBuild has placed almost all of these apprentices on City and County projects verifying the viability of the City's construction pipeline and its capacity to impact the number of San Francisco residents construction workers working on City projects.
- D. San Francisco Craft Union Employees (3,719 construction workers employed directly by the City and County of San Francisco): The City and County of San Francisco directly employs 3,719 construction workers, of whom 1,337 are San Francisco residents. This San Francisco public employee workforce has a higher participation of Whites than other San Francisco workforces, though participation slightly below the White percentage of the population. Latino workers make up a segment (15%) slightly higher than their representation in the city population of 13%, though considerably lower than their representation in the construction workforce employed in San Francisco (40%). Asian Americans make up 17% of the city workforce, considerably

below their representation in the city population (28%), while African Americans at 12% are higher than their city population percentage (6%). The City workforce, it should be noted, is an aging workforce with 1,097 of the 3,241 workers (34%) above the age of 55. The White workforce is particularly represented among the older workers.

Similar to the San Francisco resident construction workforce, the aging of this City workforce is going to create significant numbers of openings for additional craft workers within the near future.

- E. *Construction Workers Employed on San Francisco Capital Projects:* A workforce separate from the construction workforce employed by the City and County of San Francisco is the workforce employed on City and County capital projects. The information about these workers is obtained from the weekly Certified Payroll Reports (CPRs) submitted by City contractors using the San Francisco's web-based electronic reporting system. The data include hours worked and wages earned by construction workers on San Francisco capital projects. These data do not include reliable ethnic and gender distributions contained in data on the other San Francisco workforces. However, the data do yield information on the workforce by residence, trade, and journey or apprentice status.

The workforce employed on City and County capital projects is more heavily drawn from outside of San Francisco than the general construction workforce employed in the city. San Francisco residents are 39% of the construction workers employed in San Francisco, but work around 20% of the hours on City and County capital projects. Conversely, 70% of the hours on City and County capital projects between July 1, 2009 and July 30, 2010 were worked by non-San Francisco journey persons, and another 10% by non-San Francisco apprentices. Of the SF resident apprentices who do work on City and County of San Francisco projects, the largest number are drawn from Bayview/Hunters Point neighborhood and the second largest group is drawn from the Ingleside/ Excelsior community. The neighborhood distribution for journey workers is similar in that the largest group of journey people is also drawn from the Bayview/Hunters Point neighborhood, followed by residents of the Ingleside/ Excelsior community. If the City does nothing more than what it is doing now, the data reflect an approximate rate of 20% local resident participation for all construction hours. However, it should be noted that this rate of participation varies across projects and across trades. Three trades, the Carpenters, Laborers and Plumbers, account for a significant proportion of the hours worked by SF residents. In addition, the fact that San Franciscans comprise 39% of the overall construction workforce employed in San Francisco but only 20% of the workforce employed on City and County projects again points to the pool of incumbent workers that could be brought into public sector work and have the opportunity to earn prevailing wages.

- (3) *Projections of Construction Jobs to be Generated by the City and County of San Francisco 10-Year Capital Plan:* In March 2010, San Francisco issued its 10 year Capital Plan for the Fiscal Years 2011-2020. The research team examined the Capital Plan and identified 204 capital projects included in the Spending Plan representing \$31.7 billion in estimated value. The research team went beyond the Input-Output economic modeling frequently utilized in job projections for capital projects. The research team completed project level analysis, and set out the jobs by time period/duration, trade/occupation, and journey person/apprentice status. This analysis yielded an estimate of a total of 59,664 FTE equivalent positions over the 10-year period of the capital plan. The bulk of the jobs are generated within the first five years, FY 2011 through FY 2015. On a yearly basis, the greatest number of FTE positions, 9,389 (equivalent to 19,529,120 hours), will be generated in FY 2011 followed by 9,313 (equivalent to 19,371,040) in FY 2014. Approximately, 38,408 (equivalent to 79,888,640 hours) FTEs will be generated in the first 5 years, compared to 21,250 FTEs projected for the second five years.

These projections align with a large portion of the construction work the City and County will undertake within the next ten years. However, the work sponsored by the Mayor's Office of Housing, several of the San Francisco Redevelopment Agency projects slated for construction by developers, and all of the work that will be completed by private owners is not included. Therefore, it is reasonable to conclude that an even greater number of skilled trades positions will be generated within the City and County over the next 10 years. The demand for a well-trained construction workforce continues to exist.

- (4) *Local Hire Programs and Project Labor Agreements:* The research team was asked to gather information on Local Hire Programs operated by other public entities, including several that work in conjunction with Project Labor Agreements (PLAs). Information was gathered on 14 programs, 8 utilizing a PLA. The review of the Local Hire Programs finds that they are not of one form, but vary widely. They have taken different approaches to key categories of (i) Coverage—entire city, zip codes, other sub-units, (ii) Percentage level of goals for local hiring and use of tiered process, (iii) Specific Goals for apprentices, (iv) Mandatory and Good Faith/Best Efforts, (v) Community Involvement, (vi) Labor Involvement, (vii) Contractor Involvement/Education, and (viii) Cost of Administration/Staffing.

The design of a Local Hire Policy and Program must consider issues related to each of these categories. Further, a review of the Local Hire Programs finds a considerable variance in outcomes. Of note, it appears that the utilization of a PLA as a local hiring vehicle does not in itself guarantee enhanced outcomes.

- (5) *Policy Issues Regarding Local Hire Raised in the Research Findings:* The team identified nine issues raised by the research findings that should be considered by Local Hire policy and workforce planners.

- a) Worker demand: workforce projections and the aging of the local construction workforce indicate that there will be sufficient demand for local workers at all levels and trades.
- b) Worker supply: current rate of 20% local resident utilization for City and County sponsored projects provides a useful baseline tool for Local Hire. Moreover, high unemployment rates and underemployment among incumbent workers signal an ample supply of 20-25% available San Francisco resident construction workers.
- c) City workforce infrastructure: City has requisite construction workforce infrastructure, through CityBuild, to support augmented local hire effort.
- d) Gender imbalance: women comprise a small portion of the existing construction workforce. Addressing this gender imbalance is critical.
- e) Worker mobility: determining initial and ongoing local worker residency criteria that takes into account worker mobility is essential.
- f) Sustainable employment: hiring practices that promote sustainable employment are premium program objectives. Contractors and employers should be able to move from project to project and from one location to another without penalty. City must be responsive to regionalism, mobility of construction work as well as other Bay Area local hire programs.
- g) Union membership: High unemployment rates among local union members must be taken into account.
- h) Project Labor Agreements: PLAs do not in themselves guarantee enhanced Local Hire outcomes.
- i) Trade Distribution: Carpenters and Laborers comprise a high percentage of SF resident construction workers. Efforts to broaden this participation to include a wider range of trades are important to building a diversified local construction workforce.

Participants in upcoming Local Hire discussions in San Francisco may not reach complete consensus on the specifics of policy proposals. However, we believe all stakeholders will agree that all parties are best served by an approach built on the most complete understanding of and data on construction workforce dynamics and the workforce projections associated with upcoming City and County capital works projects. Moreover, as a leader in construction job generation, the City and County of San Francisco is in a unique position to play a principal role in shaping and building a qualified and diverse locally based construction workforce that will contribute to meeting its future workforce needs and benefit all San Franciscans.



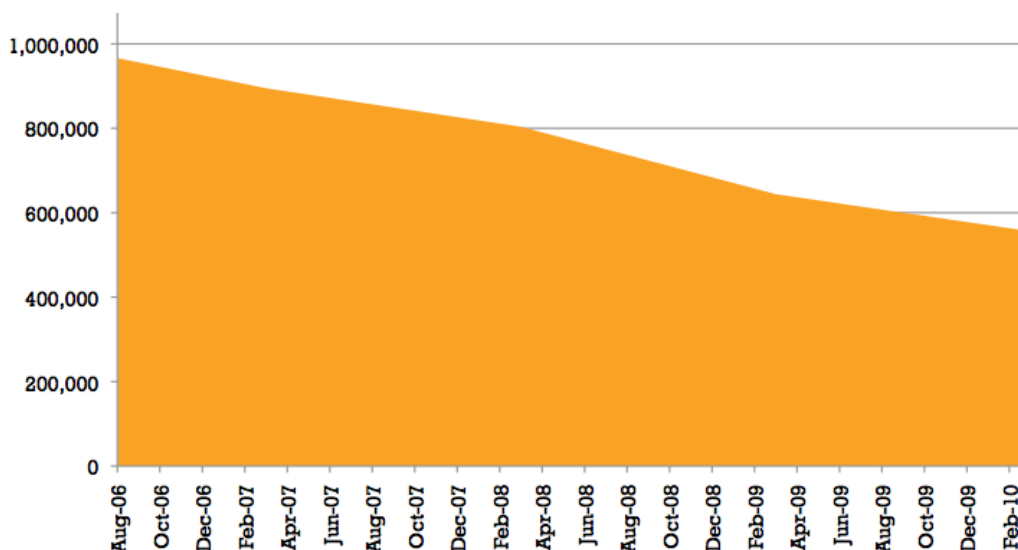
1. Economic Backdrop

Section 1: The Economic Backdrop: Construction Employment in California and the Bay Area During the Current Recession

An analysis of construction employment in San Francisco must start with a word on the state of construction employment in California and the Bay Area during the current Recession. Over the past four years, the construction industry has lost over 400,000 jobs statewide—more construction jobs than exist in most other states. The Bay Area has not been hit as hard, but it has seen construction employment in the three-county Metropolitan District (San Francisco, Marin, and San Mateo) as defined by the State of California Employment Development Department (EDD) for employment reporting decline by nearly 14,000 jobs.

As shown on Chart 1, construction employment reached 966,300 jobs statewide in August 2006. At the time, EDD and other economic analysts projected construction employment in California to continue to grow to over one million jobs. Instead, the construction industry started a decline in construction jobs that turned into a free-fall of jobs by the start of the Recession in mid-2007. By March 2010, construction employment had fallen to 556,100, and has continued to fall since to 545,500 jobs statewide according to the July 2010 state job report.

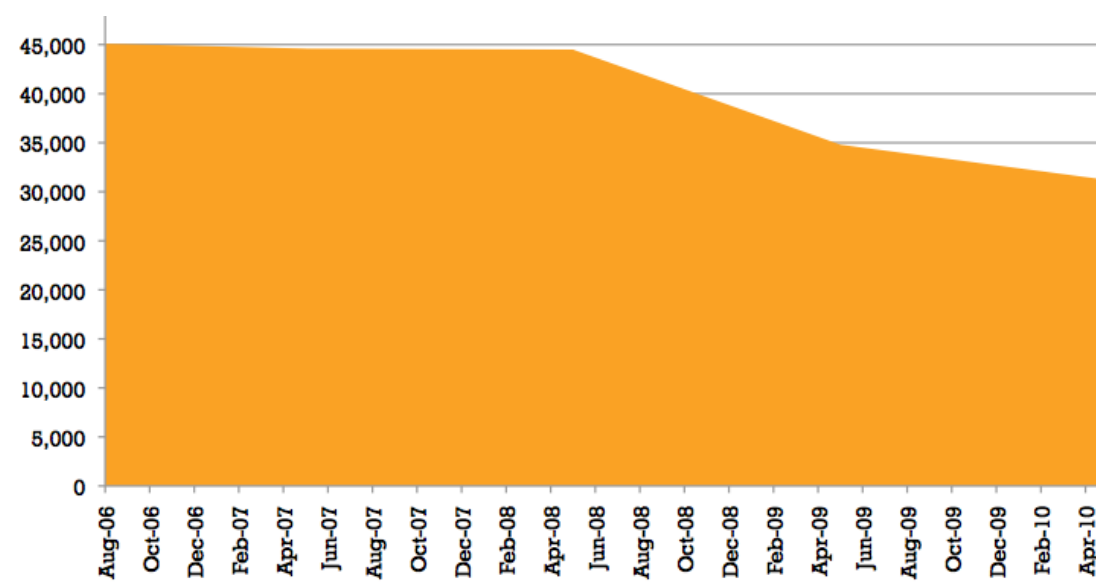
Chart 1: Declining Construction Jobs in California



Source: Employment Development Department/Labor Market Division, 2010

San Francisco construction employment has not been as hard hit as state employment, but still has seen significant construction employment losses (Chart 2). For measuring of payroll jobs, San Francisco is counted by EDD as part of a three-county Metropolitan District: San Francisco, Marin, and San Mateo. This District had 45,100 construction jobs in August 2006, and had lost nearly one-third of these jobs, falling to 31,200 construction jobs in May 2010.

Chart 2: Declining Construction Jobs in San Francisco, Marin and San Mateo Counties



Source: Employment Development Department/Labor Market Division, 2010

Questions have been raised in presentations of this analysis about the unemployment rate among San Francisco construction workers. EDD does not maintain data on the unemployment rates specifically for construction workers in San Francisco or the Metropolitan District. EDD did issue a report in mid-2009 of 12-month moving average unemployment rates statewide among major occupational groups.

For the construction sector, EDD found that construction unemployment had increased from 10.4% in April 2008 to 18.1% in April 2009—a far higher unemployment rate than for any other sector save farm workers.² Since April 2009, unemployment among the construction workforce in San Francisco has likely increased as the construction sector continued to lose jobs and as the state unemployment rate continued to rise from 11.8% in June 2009 to 12.3% in July 2010.

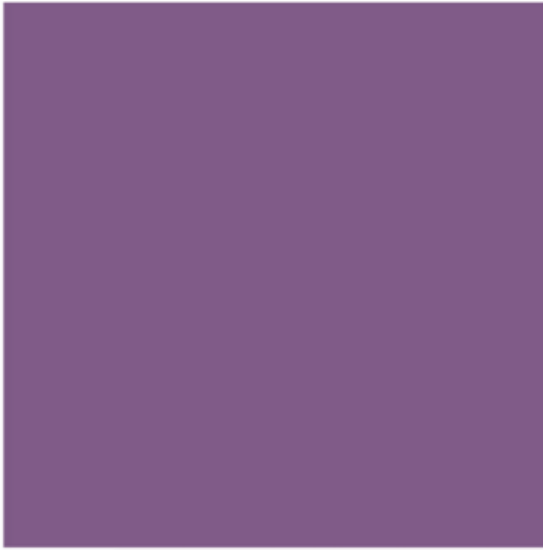
It is important to note that rising unemployment in the construction sector for San Francisco has particular impacts for less educated members of the San Francisco workforce, specifically those with either less than or equivalent to a high school education. In 2006, Egan and Lester reported that San Francisco offers these workers either, “relatively high paying or relatively low paying employment chances”.³ For San Francisco workers with less than a high school education, they found that the top three professions at the upper end of the wage scale were: 1) Drywall installers, Ceiling Tile Installers and Tapers, 2) Roofers and 3) Construction Laborers – all

² State of California Employment Development Department, “California Labor Market and Economic Analysis”, Sacramento, California, May 2009

³ Egan, Ted, Ph.D., & Lester, Bill (April 2006:70). “San Francisco’s Economic Performance: Outcomes, Markets, Workforce, and Small Business,” (PowerPoint Presentation). San Francisco Economic Strategy Analysis Report. ICF Consulting.

construction skilled trades fields. Similarly, for workers with only a high school education, construction skilled trades jobs accounted for seven of the top fourteen professions at the upper end of the wage scale. Moreover, the other top seven professions, while not exclusive to the construction sector, were primarily in related maintenance and repair fields.

Conversely, Egan and Lester concluded that San Francisco workers with lower educational attainment would likely only expect to find jobs concentrated at the low-paying end of the wage spectrum. Thus, those San Francisco workers with less than or equivalent to a high school diploma who have lost construction jobs during the Recession and have not augmented their level of educational attainment are unlikely to be able to secure other jobs within the city that offer equivalent wages. They represent a very vulnerable segment of the local workforce.



2. SF Construction Workforce

Section 2: Characteristics of the San Francisco Construction Workforces

The San Francisco construction workforce is made up of five main workforces: (A) the construction workforce employed in San Francisco, (B) the construction workforce resident in San Francisco and currently employed, (C) the construction apprentices resident in San Francisco, (D) the construction workforce employed directly by the City and County of San Francisco, and (E) construction workers employed on City and County of San Francisco Capital Projects.

In this section, each workforce is briefly profiled. We draw on a variety of data sources, particularly to address the issues raised in recent City and County policy discussions regarding distribution of employment by trade occupation, ethnic and gender breakdown, residence of workers employed in the city or on City and County projects, and incomes of construction workers. As stated in the previous section, EDD does not maintain data on unemployment rates specifically for construction workers in San Francisco. Therefore, the construction workforce discussed in the following sections, with the exception of the resident construction apprentices, refers only to those workers that are employed. In the absence of reliable data, the study does attempt to characterize the construction workforce that is unemployed. Nonetheless, in light of the EDD statewide data for construction, it is very likely that San Francisco also has a sizeable number of resident construction workers that are unemployed.

A. Characteristics of Construction Workers Whose Primary Workplace is San Francisco (14,629 workers)

We start with the construction workers whose primary workplace is San Francisco, and utilize EDD payroll data combined with data from the United States Census American Community Survey.

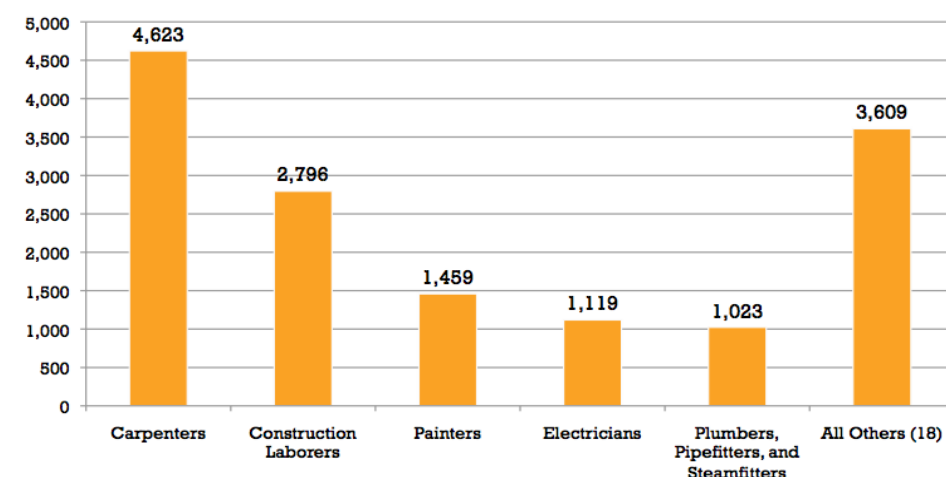
The EDD payroll data indicates there were 14,629 workers employed in the city in June 2010. The EDD payroll data does not provide information on the specific characteristics of these workers. However, such information can be gleaned by combining it with additional information from the U.S. Census American Community Survey (2006-2008). The characteristics described below were derived by combining information from these two sources.⁴

Trade Distribution

Currently, five trades dominate the construction workforce, and together constitute more than 75% of the total number of workers employed in the city. Carpenters are the largest among the trades with 4,623 workers, followed by Construction Laborers (2,796 workers), Painters (1,459), Electricians (1,119) and Plumbers, Pipefitters and Steamfitters (1,023). Chart 3 indicates the distribution of these workers among these trades (see Appendix A for the distribution across all trades).

⁴ Construction workers frequently work at various worksites during the year, including worksites in more than one county. As the American Community Survey is a self-identified survey, the San Francisco construction workers are those that indicated San Francisco as their primary place of employment (599 workers) as well as the construction workers indicating San Francisco as their place of residence (358 workers).

Chart 3: Distribution of Construction Workforce Employed in San Francisco by Trades

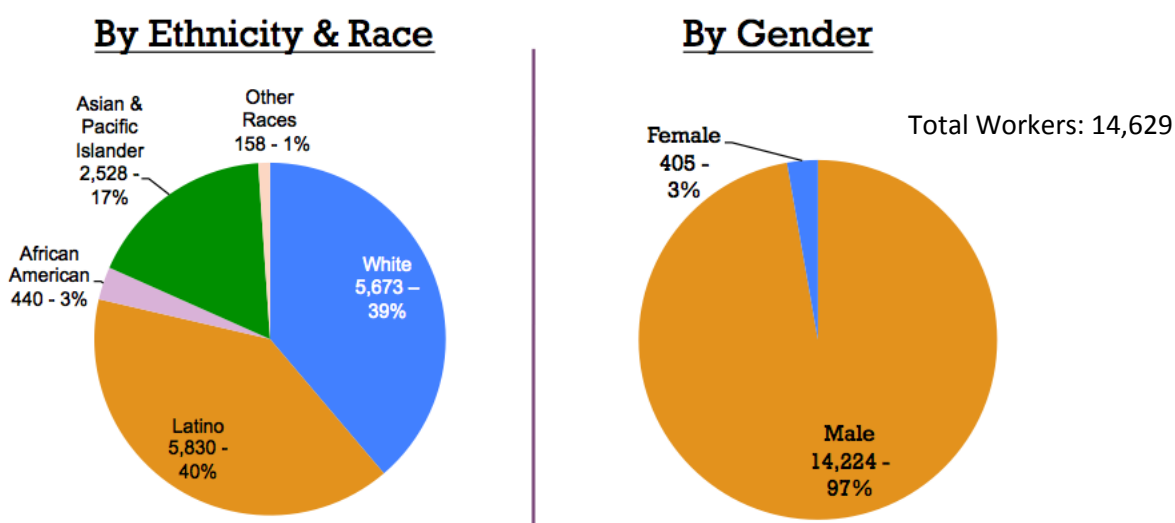


Source: American Community Survey & EDD, June 2010

Ethnic and Gender Distribution

This construction workforce shows a high level of diversity among ethnic groups. Whites and Latinos each makeup around 40% of the workforce, with the next largest category being Asians and Pacific Islanders at 17%, followed by African Americans at 3%. Women make up just 3% of this workforce overall.

Chart 4: Ethnic and Gender Distribution of Construction Workforce Employed in SF



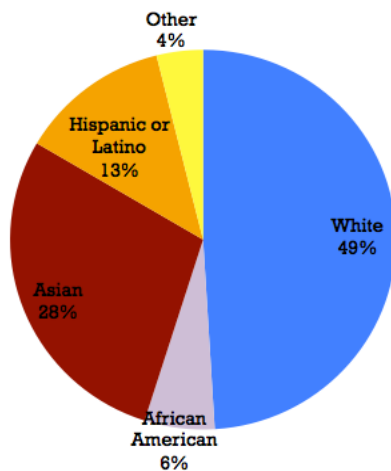
Source: American Community Survey & EDD, June 201

These percentages can be compared with the ethnic distribution of the city population as a whole, as shown on Chart 5. As can be seen, Latinos make up a considerably larger portion of the

workforce than they do of the overall population (40% vs.13%). All other major racial categories constitute a smaller portion of the construction workforce than they do of the total population: Whites (39% vs. 49% overall), followed by Asians and Pacific Islanders (17% vs. 28% overall) and African Americans (3% vs. 6% overall).

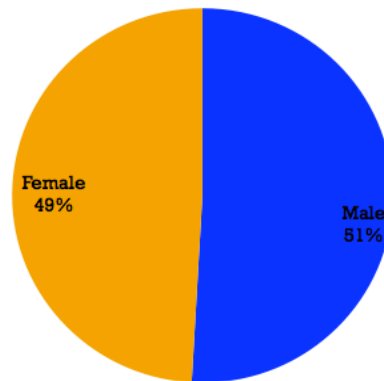
Chart 5: Ethnic and Gender Distribution of SF Population

By Ethnicity & Race



By Gender

Total SF City Population: 775,317



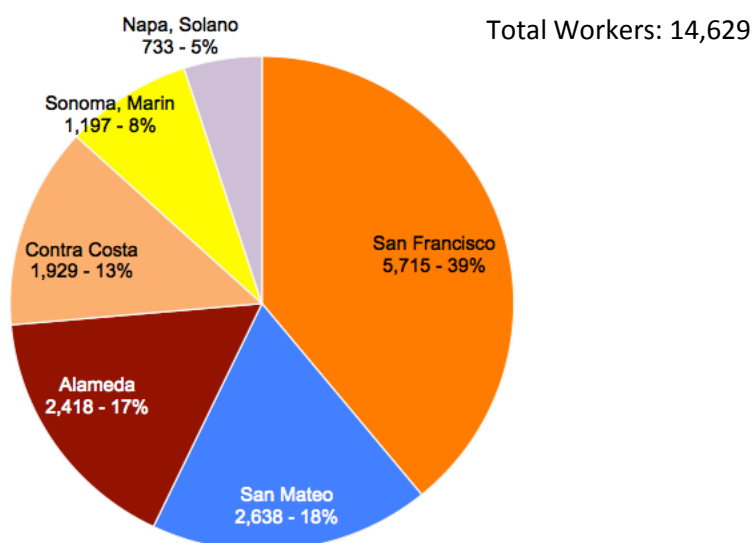
Source: American Community Survey 2006-2008 Estimate

The main imbalance between the employed construction workforce and the San Francisco population lies with the gender distribution. Women comprise only 3% of the 14,629 construction workers in San Francisco, whereas they account for nearly half of the overall population. As will be apparent later in this section, this gender imbalance persists in other segments of the city construction workforce as well.

Residency Distribution

Of note, San Francisco is the main county of residence for the construction workforce employed in San Francisco as shown in Chart 6, comprising 39% (5,715 workers). As might be expected, nearby counties have the next highest proportions of workers, with San Mateo at 18%, and Alameda at 17%. Accordingly, counties that are somewhat more distant have relatively lower proportions, with Contra Costa at 13% and Sonoma and Marin at 8%, and Napa and Solano at 5%.

Chart 6: Construction Workers Employed in SF by County of Residence

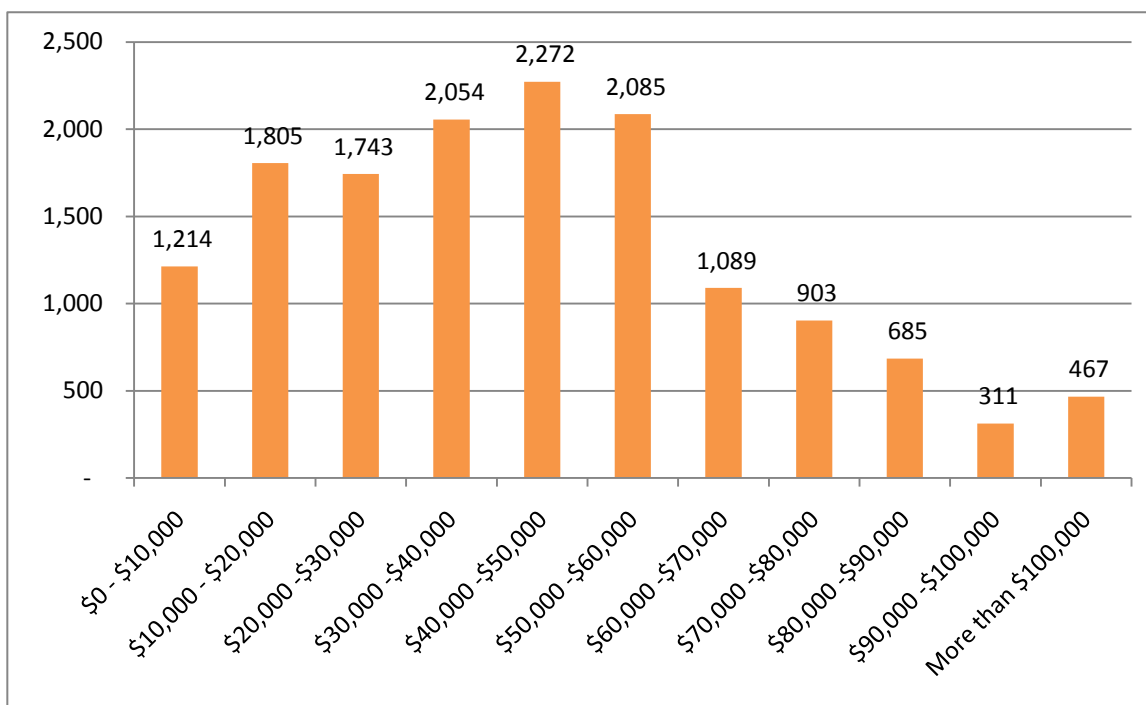


Source: American Community Survey and EDD, June 2010

Earnings

As can be seen, nearly 33% of these workers report earnings of less than \$30,000 per year as shown in Chart 7. The data here involve the universe of union and non-union construction workers, as well as workers who identify construction as their primary occupation but may work on a part-time or less than full-time basis.

Chart 7: Earnings of Construction Workers Employed in SF



Source: American Community Survey and EDD, June 2010

B. Characteristics of Construction Workers Resident in San Francisco (7,855 workers)

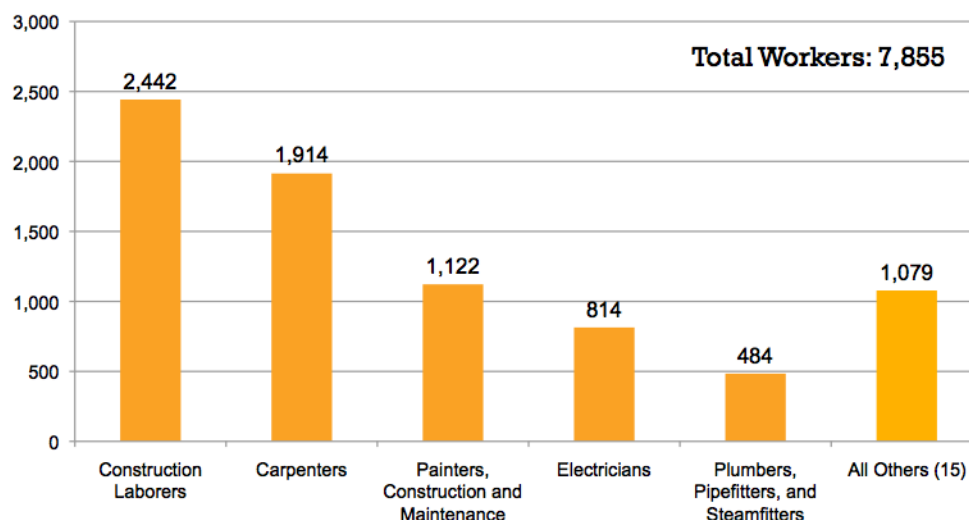
We can also combine information from EDD payroll data with the U.S. Census American Community Survey data to obtain a profile of the characteristics of the construction workforce who are city residents. Unlike the previous group of workers profiled in Section A (who live throughout the Bay Area and whose primary place of employment is San Francisco), these construction workers all live in San Francisco, though some are employed in other Bay Area counties. From EDD payroll data and from historic employment relationships between San Francisco, San Mateo, and Marin counties, we estimate there were 7,855 construction workers residing in San Francisco and who were employed as of June 2010—roughly 1% of total residents of the city.

Trade Distribution

The same five trades make up an even higher proportion of the resident employed construction workforce than they did with the employed construction workforce (86% vs. 75%), though the top two places are reversed. Construction Laborers is the largest trade with 2,442 workers,

followed by the Carpenters at 1,914 workers, Painters at 1,122, Electricians at 814 and Plumbers at 484. (See Appendix B for the distribution across all trades).

Chart 8: SF Resident Construction Workers by Trade



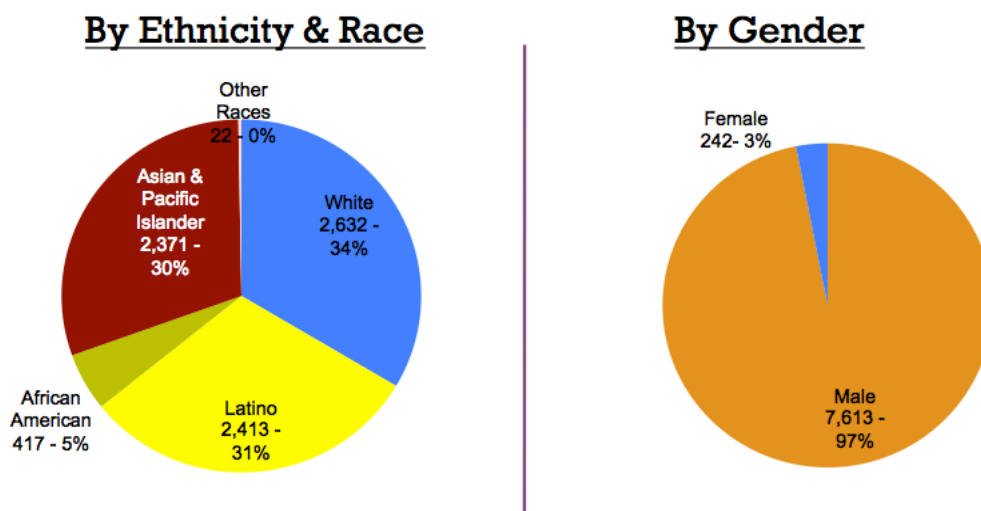
Source: American Community Survey and EDD, June 2010

Ethnic and Gender Distribution

As with the construction workforce employed in San Francisco, the ethnic distribution of employed San Francisco resident construction workers is diverse: Whites at 34%, Latinos at 31%, Asians and Pacific Islanders at 30% (which is considerably higher than for the workforce employed in San Francisco), and African Americans at 5%. When these percentages are compared with the ethnic distribution of the overall city population, Whites comprise the largest segment of the resident construction workforce at 34%. This is a considerably smaller proportion than for the overall city population (49%).

As with the construction workers employed in San Francisco, Latinos make up a larger proportion of the employed construction workforce than they do the overall population (31% vs. 13%). On the other hand, Asians and Pacific Islanders comprise the next largest segment of San Francisco resident construction workers at 30%, compared with only 17% of those construction workers employed in San Francisco. This is only slightly higher than their proportion of the overall city population at 28%. The percentage of African American resident construction workers is slightly less than group's percentage of the overall population (5% vs. 6%), but is greater than the 3% portion of the workforce employed in San Francisco. Other ethnic groups combined comprise a negligible portion of the employed San Francisco resident construction workforce, as compared with 4% of the overall population and 1% employed in San Francisco.

Chart 9: SF Resident Construction Workers by Ethnicity and Gender



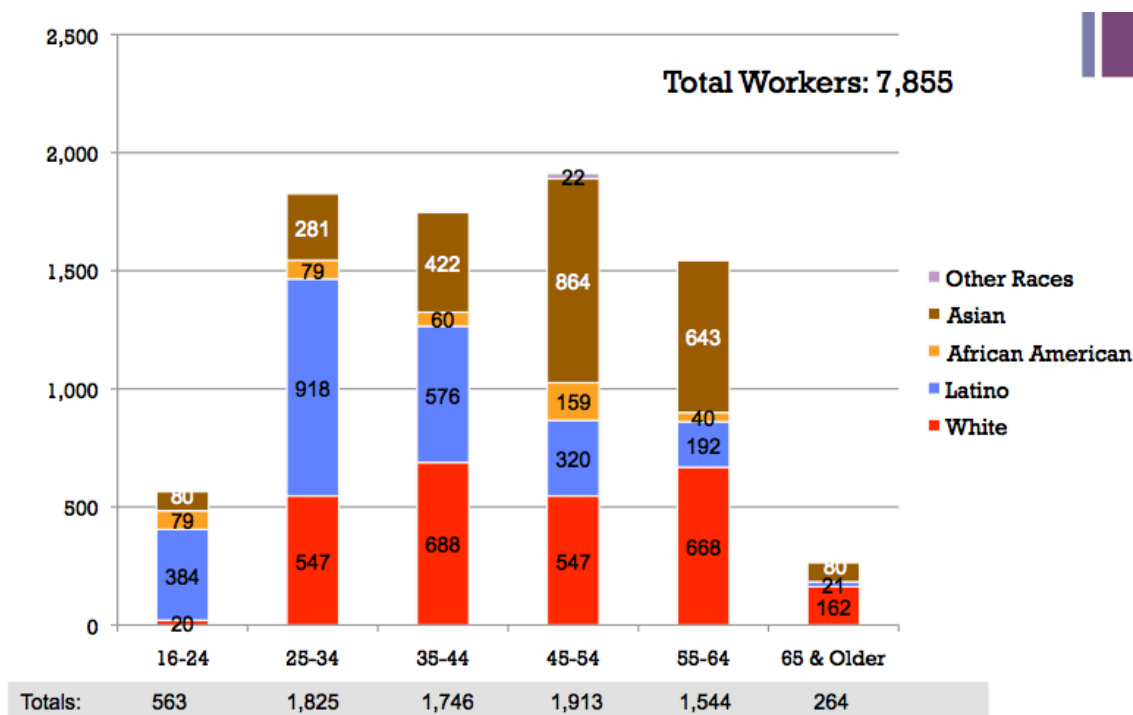
Source: American Community Survey and EDD, June 2010

As with the construction workforce employed in San Francisco, though ethnically diverse, the resident construction workforce has far less gender diversity. Women make up a very small portion at 3% of the residents in construction employment.

Age Distribution

Looking more deeply into the ethnic distribution, Chart 10 shows the distribution of resident construction workers by age, race and ethnicity. The White resident construction workforce, though sizable in the city, is skewed toward the older age groups, particularly the over 45 age cohorts. To a lesser extent this is true of the Asian resident construction workforce. By contrast, the Latino workforce is concentrated among the younger age groups, particularly among the 25-34 age group. Of note, 47% of the resident San Francisco construction workforce is over the age of 45. Moreover, 23% is already 55 years and older. Currently, the number of workers aged 55-64 is 1,544 and declines to 264 for workers aged 65 or older, dropping from 20% of the workforce to 3%. If construction workers continue to leave the sector in the same proportions, by the time they reach age 64, a sizeable number of new openings will be created.

Chart 10: SF Resident Construction Workers by Age and Ethnicity/Race

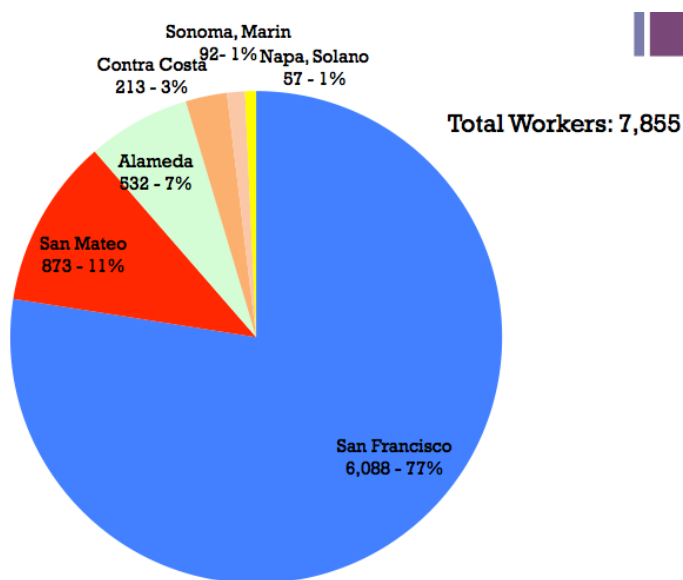


Source: American Community Survey & EDD, June 2010

Residency and Place of Employment

There are 6,087 construction workers who both live and work in San Francisco. These workers make up 77% of the 7,855 employed workers who live in San Francisco, but make up just 39% of the 14,629 workers who are employed in San Francisco. Chart 11 shows the Bay Area counties where construction workers living in San Francisco are employed. As can be seen, only 23% list counties outside of San Francisco as their primary place of employment.

Chart 11: SF Resident Construction Workers by County of Employment

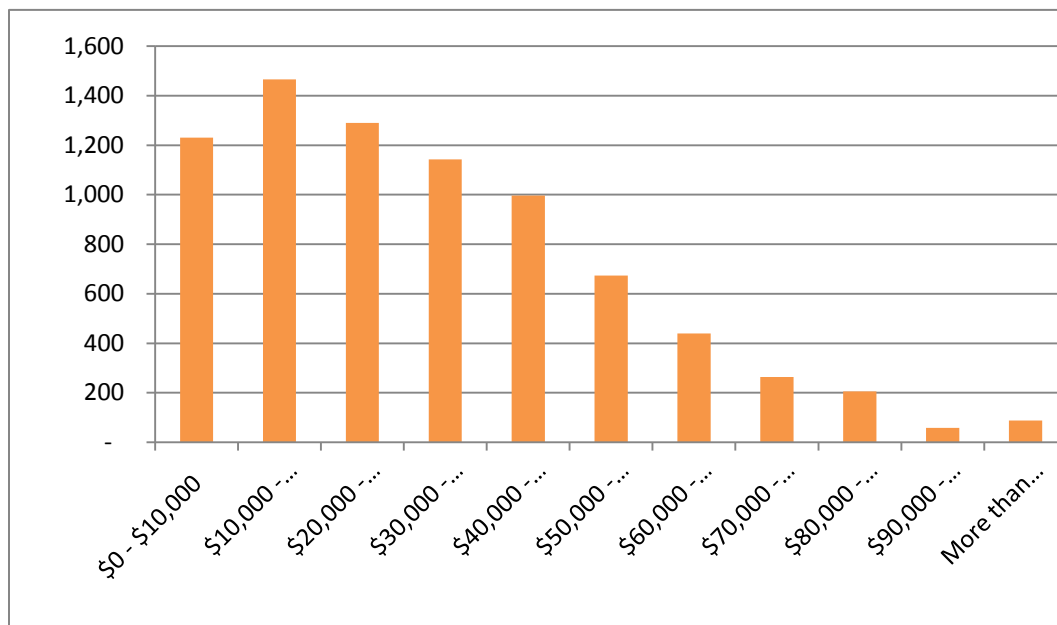


Source: American Community Survey and EDD, June 2010

Earnings Distribution

As with those employed in San Francisco, a considerable number (51%) of construction workers living in San Francisco report earnings of less than \$30,000 per year (see Chart 12). The data here include non-union and union construction workers, as well as those workers that could be considered underemployed; that is, working fewer than 30 hours during a typical week or fewer than 30 weeks during the year (see Appendix D). Further examination of the low wage earners indicates that about 1/3 of them are indeed underemployed, while about 2/3 of them appear to receive low earnings because they are paid a relatively low wage but are not underemployed.

Chart 12: SF Resident Construction Workers Earnings



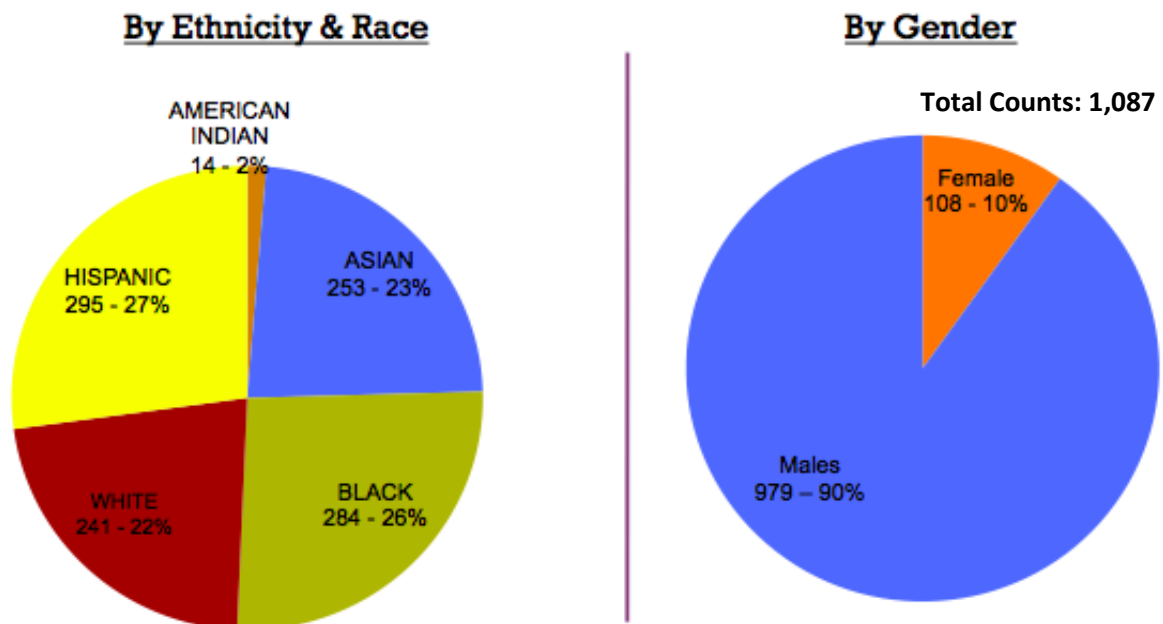
Source: American Community Survey and EDD, June 2010

C. Characteristics of Apprentices Resident in San Francisco (1,087 active apprentices)

An important subset of the San Francisco resident construction workforce is the resident apprentices. The apprentice data set is important, as apprentices will be the construction workforce of the future in San Francisco and California, especially the unionized workforce. The Division of Apprenticeship Standards (DAS) of the California Department of Industrial Relations tracks persons entering apprenticeships in California and all active apprentices in California. With the assistance of DAS staff, our research team was able to obtain data on active apprentices living in San Francisco.

As of June 2010, there were 1,087 active apprentices who were residents of San Francisco. Chart 13 shows the distribution of this group by ethnicity and gender. As with other parts of the San Francisco construction workforce, ethnic diversity was high—in fact even higher among apprentices than other parts. Each of the four largest ethnic groups in San Francisco had almost an equal share: Latino, 27%, African American, 26%, Asian, 23% and White, 22%. Women were slightly more represented among apprentices than among the overall employed construction workforce in San Francisco, with 108 apprentices or 10%.

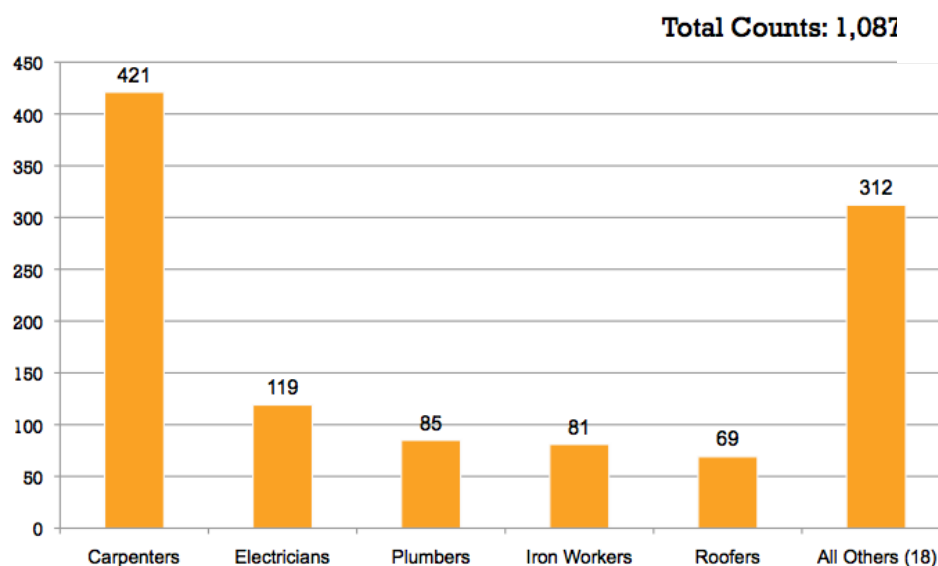
Chart 13: SF Resident Apprentices by Ethnicity and Gender



Source: Department of Industrial Relations, Division of Apprenticeship Standards, June 2010

By a good amount, the largest trade for apprentices is Carpenters with 421 active SF-resident apprentices in June 2010 (Chart 14). The next largest categories were Electricians at 119, Plumbers at 85, Iron Workers at 81, and Roofers at 69 (See Appendix C for distribution across all trades).

Chart 14: SF Resident Active Apprentices by Trade

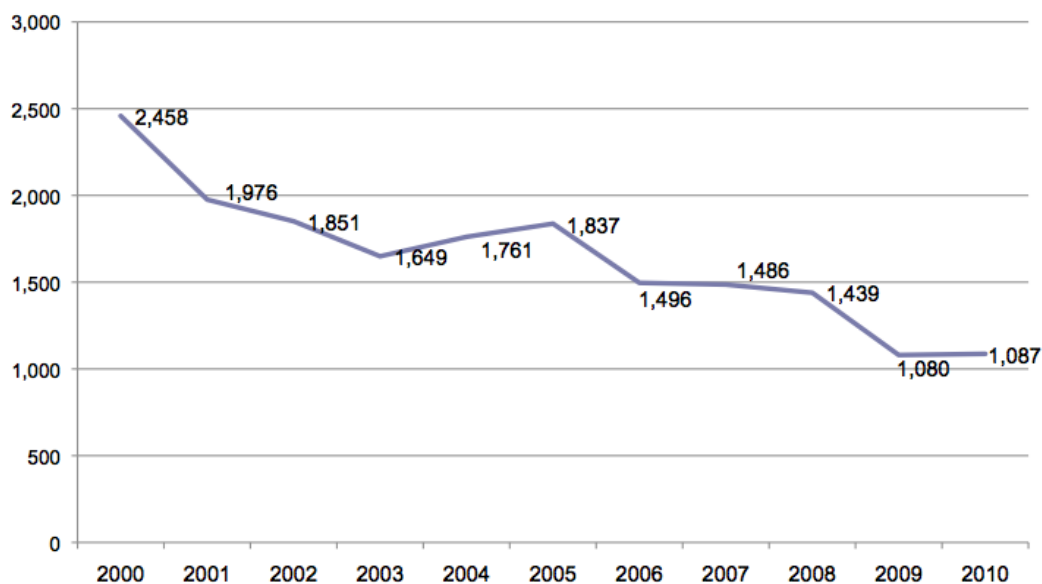


Source: Department of Industrial Relations, Division of Apprenticeship Standards, June 2010

One cautionary note about San Francisco resident apprentices comes from Chart 15, showing the number of active apprentices each year from 2000-2010. This number started at a high of 2,458, and went down to 1,649 in 2003, before rebounding to 1,837 apprentices in 2005. Especially, since mid-2007, the number of apprentices declined rapidly to its present 2010 level of 1,087. Without further investigation we cannot offer a complete explanation for this general decline. In their report, Egan and Lester⁵ noted that between 2000 and 2004, San Francisco construction jobs held fairly steady. Yet, during this same period the number of San Francisco resident construction apprentices declined significantly. Exactly what was influencing this is not clear. On the other hand, certainly it is reasonable to associate the decline in San Francisco resident construction apprentices between 2007 and 2009 with the Recession.

⁵ Ibid., 67

Chart 15: SF Resident Apprentices, 2000-2010

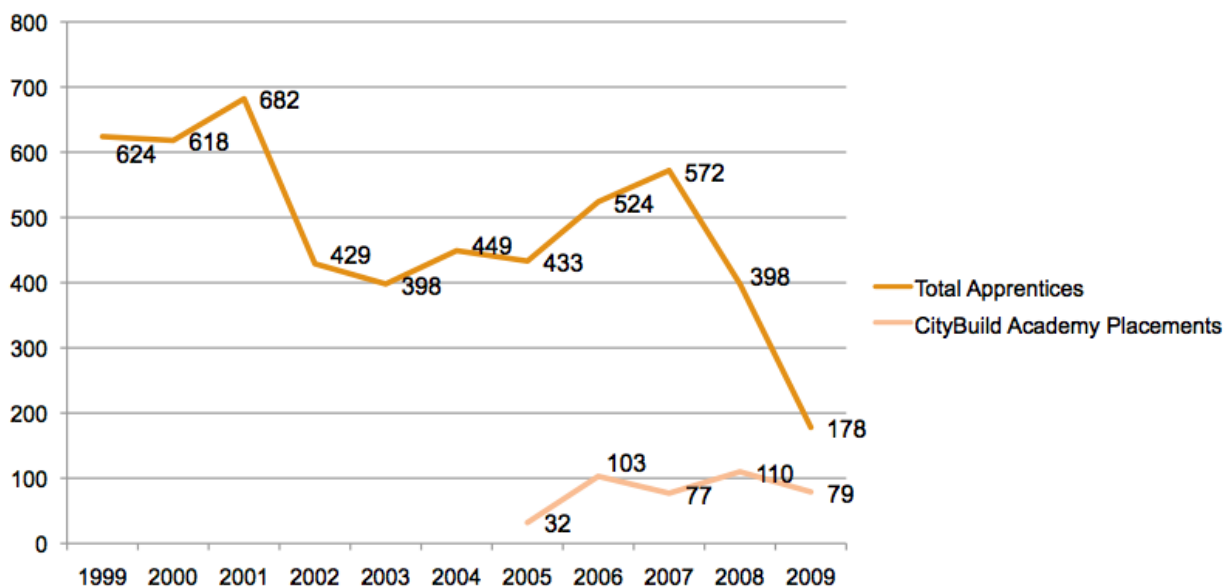


Source: Department of Industrial Relations/Division of Apprenticeship Standards

CityBuild

CityBuild, San Francisco's construction workforce program, was initiated in 2005 to serve as a vehicle for ushering disadvantaged San Francisco residents into the construction skilled trades. The program includes pre-apprenticeship training via its CityBuild Academy. Since 2006, CityBuild has placed 401 of its Academy graduates, all San Francisco residents, into union sponsored apprenticeship programs. As Chart 16 illustrates, by 2009, CityBuild participants accounted for approximately 44% of the new San Francisco resident apprentice intakes. While the Carpenters offer the greatest number of apprenticeship opportunities for CityBuild Academy graduates, program participants have been indentured into seventeen other apprenticeship programs: Carpet, Linoleum & Soft Tile Workers, Cement Masons and Operative Plasterers, Drywall Latherers, Electricians, Glaziers, Hod Carriers, Insulators and Asbestos Workers, Iron Workers, Laborers, Masons, Bricklayers and Tilers, Operating Engineers, Painters and Tapers, Plasterers and Shophands, Plumbers and Pipefitters, Roofers and Waterproofers, Sheet Metal Workers and Sprinkler Fitters. Likewise, CityBuild has placed all of these new apprentices in construction positions, the vast majority on City and County sponsored projects. The program is proving to be an important pipeline for San Francisco residents, especially disadvantaged residents, into unionized jobs and into the upper wage end of the construction sector.

Chart 16: SF Resident Apprentice Intakes
Compared with CityBuild Academy Placements



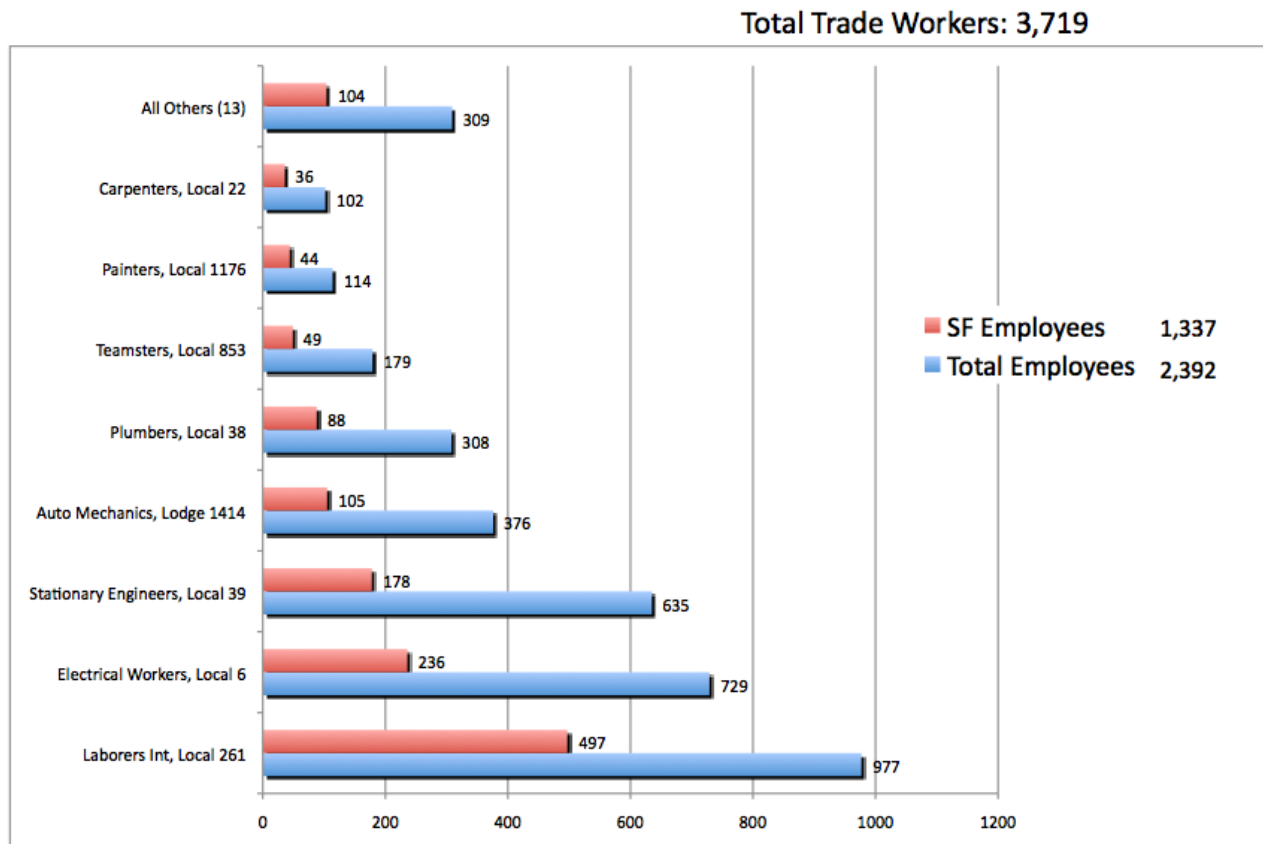
D. City and County of San Francisco Craft Union Employees (3,719 construction trade workers employed directly by the City and County of San Francisco)

The City and County of San Francisco is a major employer directly of construction workers. As of November 2009, 3,719 construction trade workers were City and County employees (Chart 17). Data from the San Francisco Department of Human Resources was utilized to generate this snapshot of the City's construction trade workforce.

Trade Distribution

Of these City and County employees, 1,337 were San Francisco residents and 2,392 were non-residents. Laborers were the largest category with 977 workers, followed by Electrical Workers at 729, Stationary Engineers at 635, Auto Mechanics at 376 and Plumbers at 308. (See Appendix E for the distribution across all trades).

Chart 17: City and County of SF Craft Union Employees by Trade

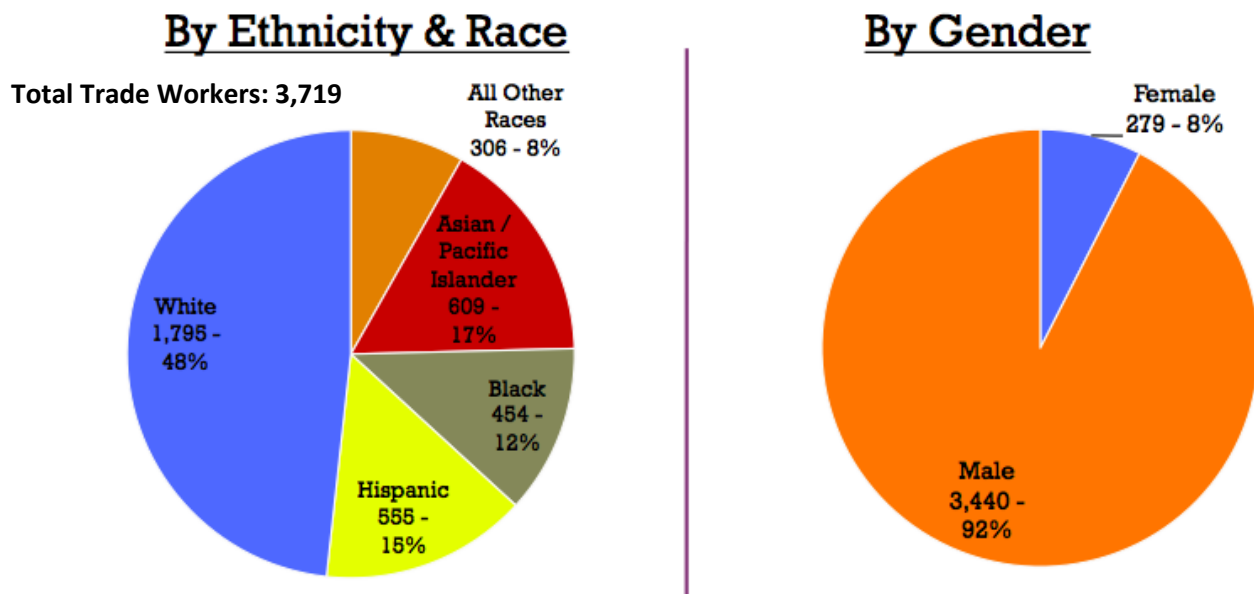


Source: Department of Human Resources, Workforce Development, November 2009

Ethnic and Gender Distribution

This City and County construction trade workforce has a greater participation of White workers than other parts of the San Francisco construction workforce (Chart 18). White workers comprise a percentage slightly below their percentage in the city population (48% vs. 49% of the workforce). Latino workers make up a segment slightly higher at 15% than their representation in the city population at 13%, though considerably lower than their representation in the construction workforce employed in San Francisco at 40%. Asian Americans make up 17% of the City and County workforce, considerably below their representation in the city population at 28%. Of note, this is the only construction workforce in which African Americans comprise a significantly larger proportion than their portion of the overall city population (12% vs. 6%).

Chart 18: SF Craft Union Employees by Ethnicity/Race



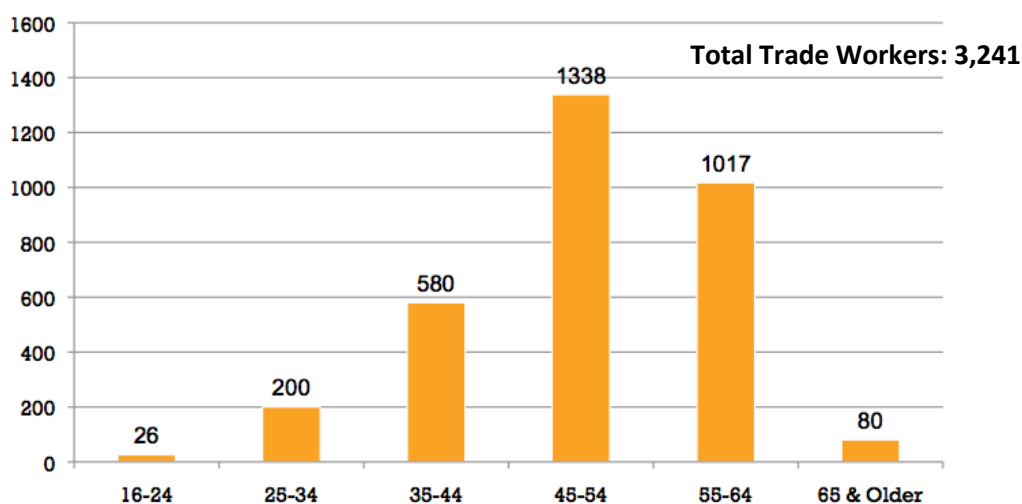
Source: Department of Human Resources, Workforce Development, November 2009

Women comprise a larger portion of the City and County Craft Employees (8%) than they do for either the construction workforce employed in San Francisco or living in San Francisco (3%).

Age Distribution

One of the characteristics of the City and County craft workers worth noting is the aging of this workforce (Chart 19). Of the 3,241 workers, 1,097 (or 34%), are aged 55 and above. Another 1,338 (or 41%) of these workers are between the ages of 45 and 54. Similar to the San Francisco resident construction workforce, many of these workers are likely to leave the sector within the next 10 years. Until the recent Recession, the City and County Department of Human Resources reports that retirements were common for workers aged 55 and over. These retiring workers would create significant vacancies for new construction employment, even without the expansion of the City and County workforce. Whether City and County craft workers defer retirement, due to loss in value of retirement plans or economic uncertainty, remains to be seen. Nonetheless, as for the San Francisco resident construction workforce, the aging of these workers is a major feature and signals future opportunities for new workers.

Chart 19: SF Craft Union Workers by Age, FY 2009 - 2010



Source: Department of Human Resources, Workforce Development, November 2009

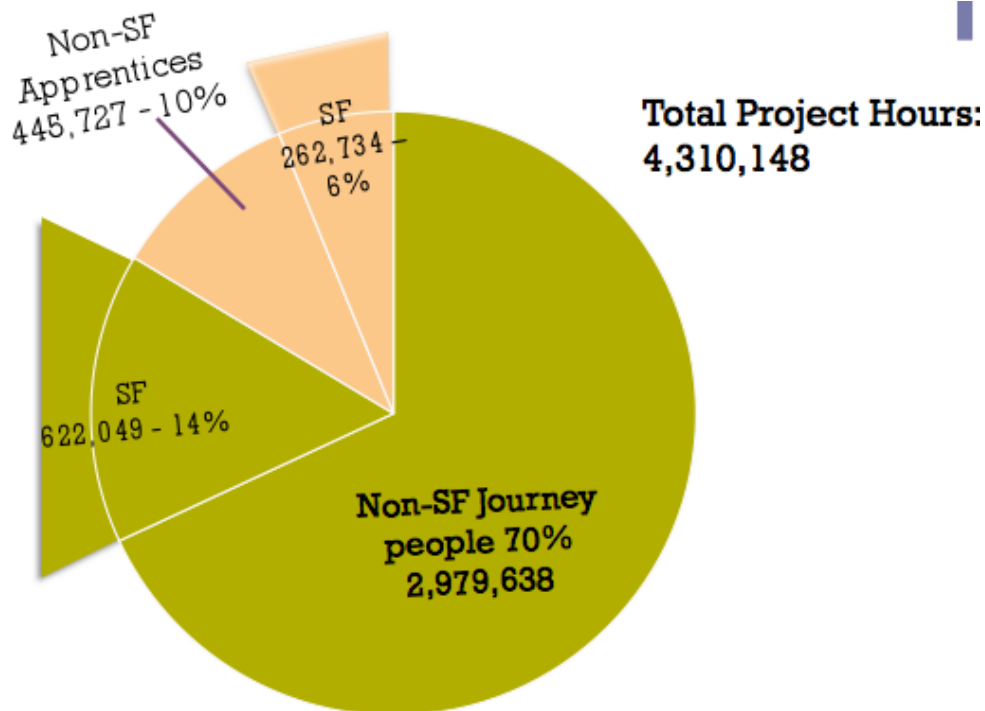
E. Construction Workers Employed on San Francisco City and County Capital Projects

A workforce separate from the construction workforce employed by the San Francisco City and County is the workforce employed on City and County capital projects. Data on this workforce is drawn from the City and County's web-based certified payroll reporting program used to track and monitor all worker wage and compliance records. The agencies that utilize this program include Mayor's Office of Housing (MOH), Department of Public Works (DPW), Department of Public Health (DPH), Municipal Transportation Agency (MTA), Port of San Francisco (PORT), Public Utilities Commission (PUC), San Francisco International Airport (SFO), and the San Francisco Redevelopment Agency (SFRA). July 2009 was selected as the starting date for analysis as most of the payroll data from these agencies prior to that date has yet to be incorporated into the system.

Residency Distribution

For all projects sponsored by any of the City and County departments and agencies mentioned above, a total of 4,310,148 project hours were worked by all skilled trade construction workers during the thirteen-month period between July 1, 2009 and July 30, 2010 (Chart 20). Of these total hours, 80% were worked by workers residing outside San Francisco and 20% by San Francisco residents. Of these total hours, 84% (3,601,687 hours) were worked by journey people –70% worked by non-San Francisco journey people and 14% by San Francisco journey people. The remaining 16% of the total hours (708,461 hours) were worked by apprentices –10% by non-San Francisco apprentices and 6% by San Francisco resident apprentices. These data provide a baseline snapshot of the number of San Francisco residents that are currently working on City and County sponsored projects in skilled trades positions. The data indicate that while it varies from project to project, San Francisco residents account for about 20% of the total construction work hours.

Chart 20: Journey People and Apprentices Working on
 SF City and County Projects by Residency and Hours



Source: City and County Web-based Certified Payroll Tracking System, July 2009-2010

Distribution by Residency, Trade and Worker Status

There were five trades that dominated the number of hours journey people worked on San Francisco projects. Specifically, Laborers, Carpenters, Electricians, Drywall/Finisher/Tapers, and Plumbers combined accounted for 2,493,736 of the total 3,601,687 hours worked by journey people (Chart 21). San Francisco Laborers account for the highest number of hours worked by San Francisco residents in these trades followed by Carpenters at 18%. These two trades combined represent a very significant portion of the 14% of San Francisco resident journey hours on City and County Projects. While the five trades listed on Chart 21 are presented by highest demand and hours, five other trades have a greater percentage of their total project hours being worked by San Francisco residents. As Chart 22 illustrates, for the Floor Layers, Sheet Metal Workers, Truck Drivers, Power Equipment Operators, and Tile Finishers San Francisco residents accounted for more than 30% of their hours worked on City and County projects.

It is worth noting that of the 708,461 hours worked by apprentices, the percentage of San Francisco resident hours worked was generally higher among all trades than the hours for journey people. The Carpenters led with San Francisco residents accounting for 63% of the Carpenter apprentice hours (Chart 23). San Francisco resident apprentices logged 42% of the Plumber apprentice hours, and San Francisco residents accounted for 36% of the hours for Drywall/Finisher/Taper apprentices. In addition, the distribution of San Francisco resident apprenticeship hours is allocated slightly more evenly across multiple trades than for journey

workers. Nonetheless, only three trades, Plumbers, Carpenters and Drywall/Finisher/Tapers again account for a very significant portion of the 6% of San Francisco resident apprentice hours on City and County projects. These apprentice figures are important indicators of the potential future supply of skilled journey-level construction workers living in San Francisco. (See Appendix F for apprentice distribution across all trades).

Chart 21: Journey People Working on City and County Projects by Trade in Highest Demand and Hours

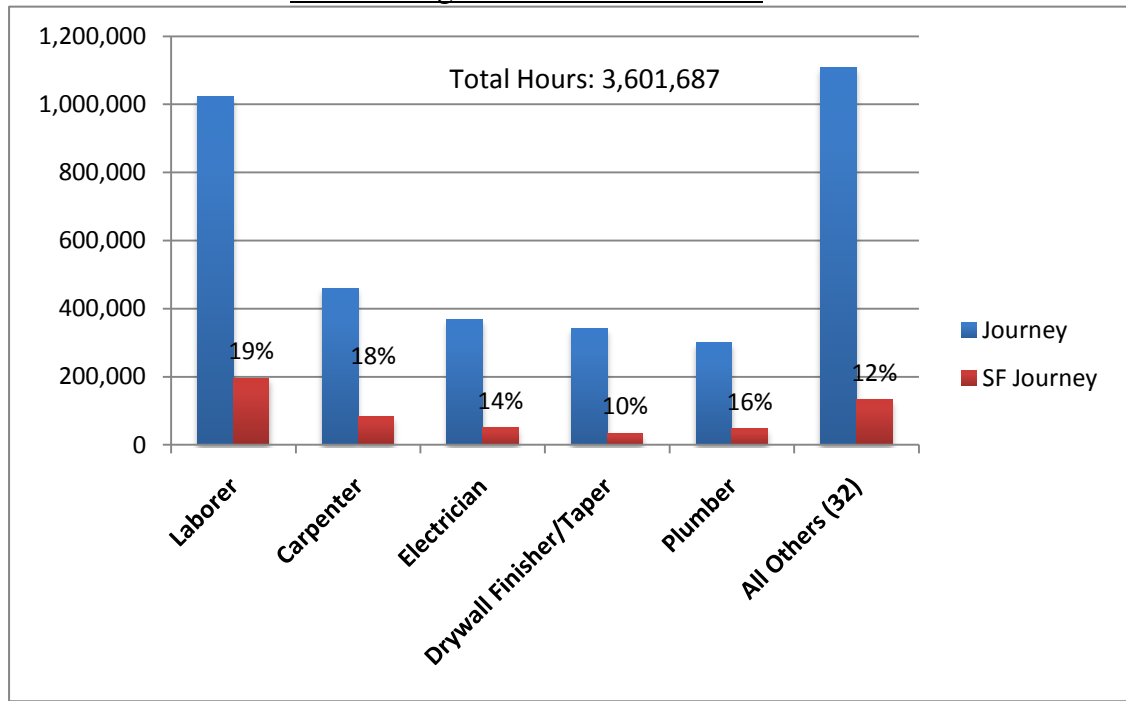
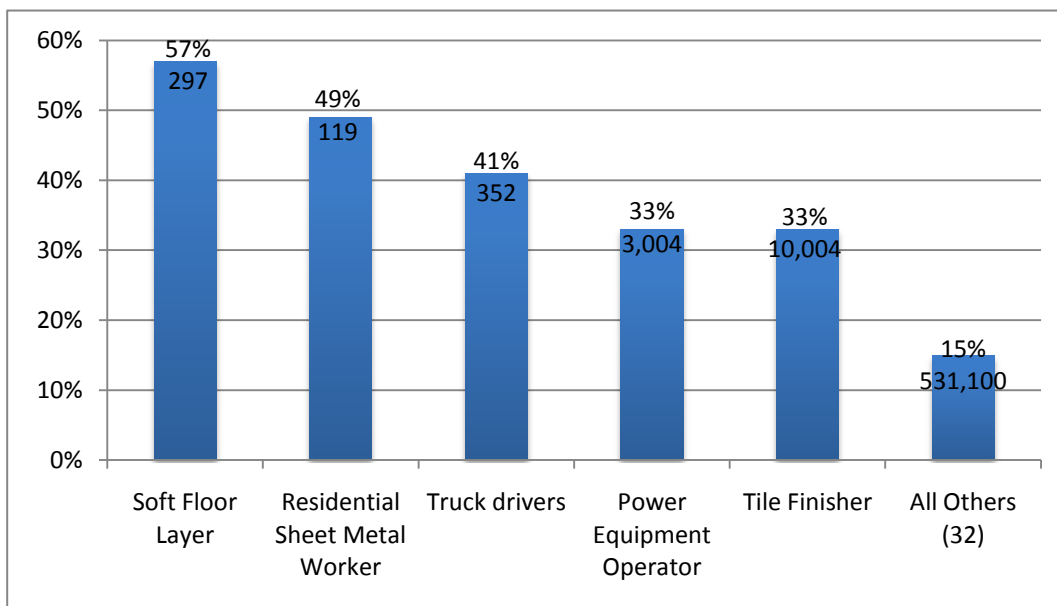


Chart 22: Highest Percentage of SF Resident Journey Hours by Trade Working on City and County Projects



Source: City and County Web-based Certified Payroll Tracking System, July 2009 - 2010

Chart 23: Apprentices Working on City and County Projects by Trades in Highest Demand and Hours

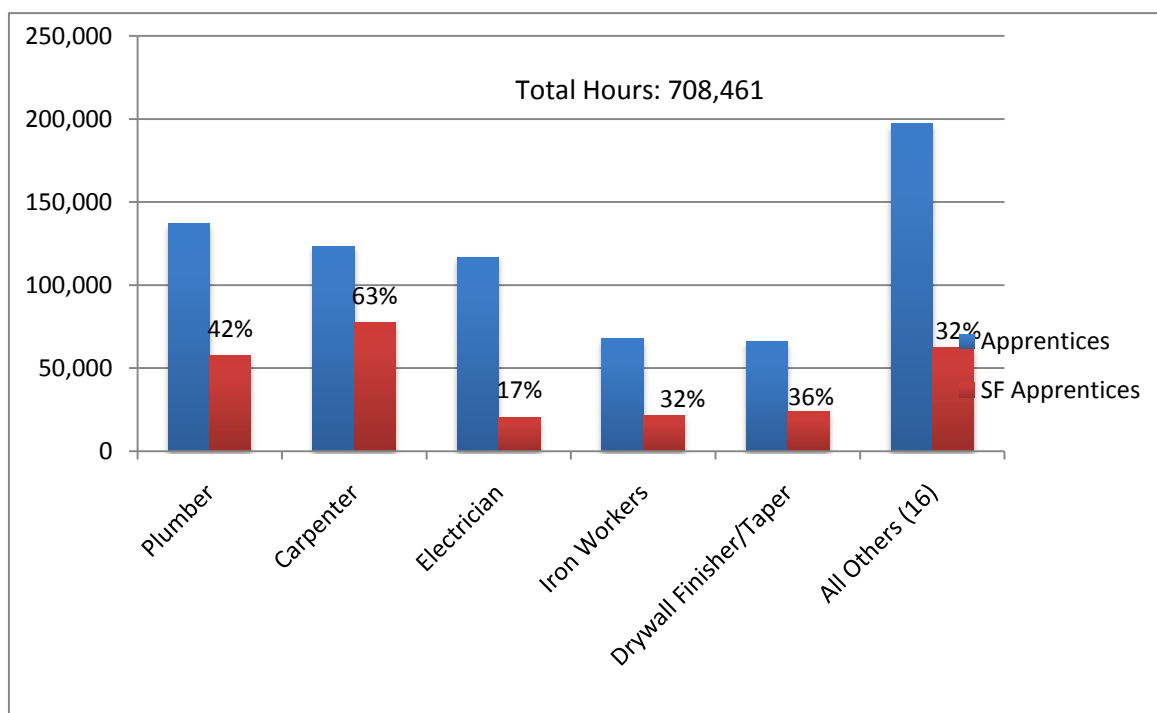
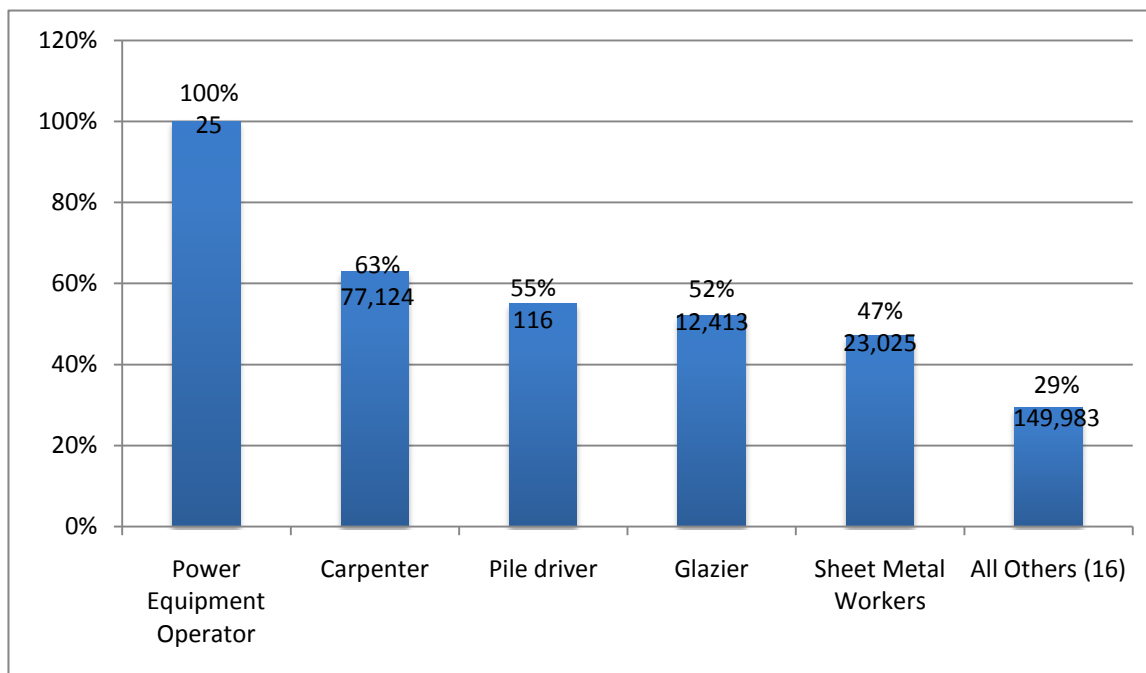


Chart 24: Highest Percentage of SF Resident Apprentice Hours by Trade Working on City and County Projects



Source: City and County Web-based Certified Payroll Tracking System, July 2009-2010

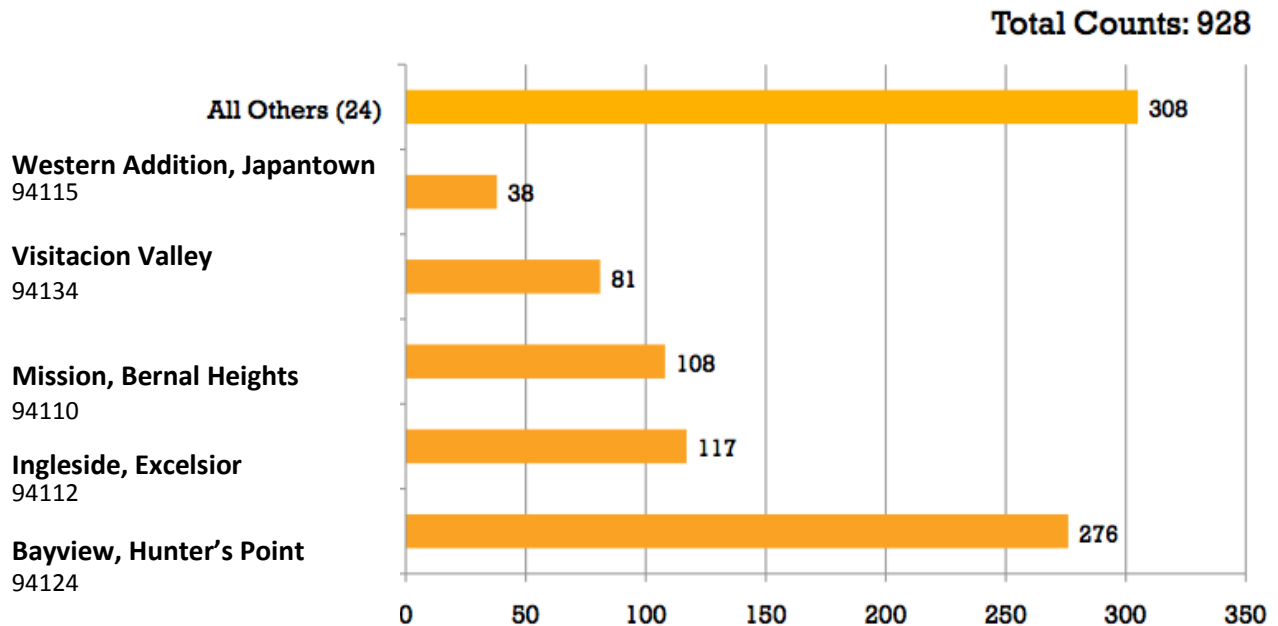
As Charts 23 and 24 illustrate, San Francisco has a supply of resident apprentices in diverse trades. Five trades in particular are either near or over 50% San Francisco resident participation (Power Equipment Operators, Carpenters, Pile Drivers, Glaziers, and Sheet Metal Workers) for all their apprentice hours worked on City and County projects. While apprentices may not make up more than 20% of the total hours worked on a public project, again, the apprentice figures are indicators of the potential future supply of skilled resident construction workers.

Neighborhood Distribution of SF Project Apprentices and Journey People

San Francisco project apprentices, who total approximately 928 workers, are residents from disadvantaged neighborhoods across the City. For example, the largest numbers of apprentices are drawn from the Bayview/Hunters Point community under zip code 94124 (Chart 25). The next highest numbers of SF project apprentices reside in zip code 94112 (Ingleside, Excelsior) and zip code 94110 (Mission, Bernal Heights).

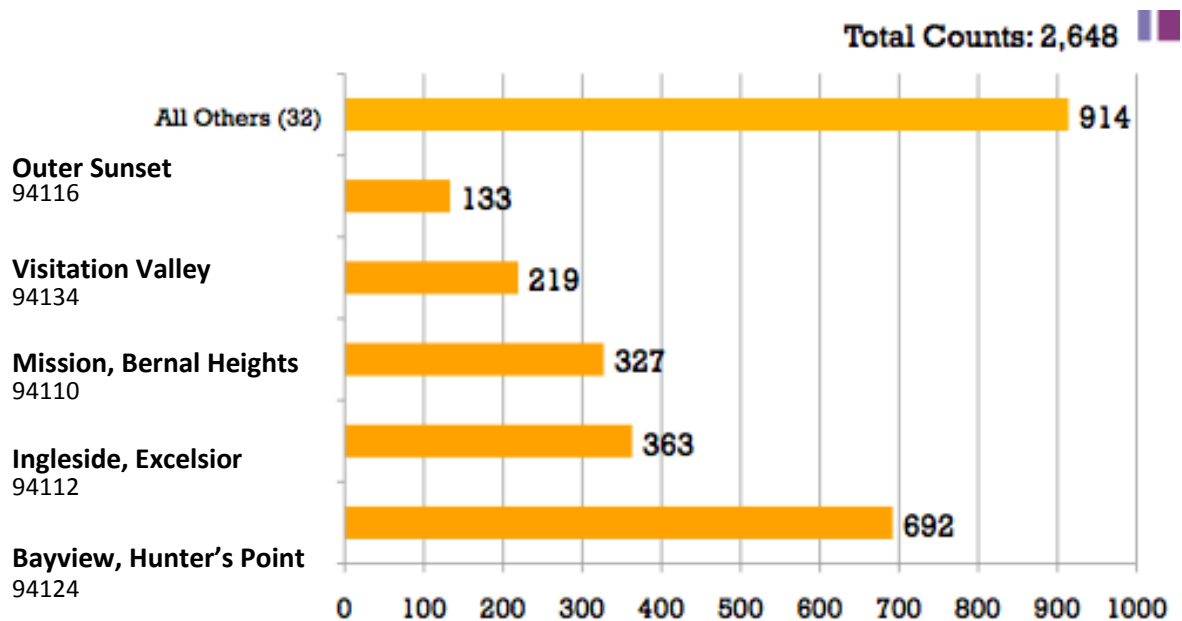
The San Francisco project journey people, who total approximately 2,648 workers as shown in Chart 26, have a similar distribution as the project apprentices (Chart 25), with the exception that there is a higher proportion of journey people living in zip code 94116 (Outer Sunset) than there are in zip code 94115 (Western Addition, Japantown).

Chart 25: SF Resident Apprentices Working on City & County Projects by Zip Code and Approximate Counts



Source: City and County Web-based Certified Payroll Tracking System, July 2009-2010

Chart 26: SF Resident Journey Persons Working on City & County Projects by Zip Code and Approximate Counts



Source: City and County Web-based Certified Payroll Tracking System, July 2009-2010



3. Workforce Projections

Section 3: Construction Jobs Projected to Be Generated by the City and County 10-Year Capital Plan

In March 2010, the City and County of San Francisco issued its 10-year Capital Plan for the Fiscal Years 2011-2020. This Capital Plan is meant as a roadmap for San Francisco project implementation, including the job creation associated with major infrastructure projects.⁶ The Capital Plan includes roughly \$31.7 billion in Spending Plan projects, as well as a more fiscally constrained \$26.9 billion Funding Plan.

The capital projects are divided into two categories in the Capital Plan: 1) projects directly administered by the City and County, such as Central Subway, Airport Terminal 2, and the PUC's Water System Improvement Program, and 2) projects located in San Francisco but administered by external agencies, such as the Transbay Transit Center and Presidio Parkway/Doyle Drive Replacement Project.

As part of this research effort, the team was asked to develop job projections for capital projects in the 10-year Capital Plan, set out by trade, time period of job creation, and division among journey people and apprentices.

Input-Output Models and Job Projections of Capital Projects

For job projections associated with public capital projects on the federal, state or local levels, Input-Output (IO) models are often utilized. The research team examined several major job projection studies associated with IO models.⁷ These include recent job projections associated with capital projects by the Milken Institute, the University of Massachusetts, and the California Infrastructure Coalition, as well as the construction job projections utilized for project evaluation by the United States Department of Transportation (USDOT) for highway and transit projects, and by the Southern California Metropolitan Water District (MWD) for water projects. The team also reviewed the job projections by the REMI model, one type of IO model, utilized by the City and County.⁸

These IO models vary in their job projections, even for projects of the same type. For example, the US DOT, utilizing an IO model, estimates 9,500 construction jobs per \$1 billion in

⁶ In August 2005, City government adopted Administrative Code sections 3.20 and 3.21 requiring the City to annually develop and adopt a ten-year capital expenditure plan for city-owned facilities and infrastructure. The Plan sets out 197 projects in the Spending Plan, totaling \$31.7 billion, and a more constrained Funding Plan totaling \$26.9 billion. Even this Funding Plan, though, does not have guaranteed funding for its projects, and rests on expectations of future funding availability.

⁷ Among California public entities, the IMPLAN model is the most widely used of the IO models, due to its transparency and use in university research. The REMI model, used by the City/County of SF is a more complex model—an IO model that adds dynamic responses to price and technology changes. The most complex of the IO models is the Computable General Equilibrium Model (CGE), determining price response on the supply side and demand side.

⁸ The REMI model utilized by SF City/County estimates 4.93 construction job years for each \$1 million in construction spending. The REMI model further estimates 2.3 indirect jobs for each \$1 million in construction spending. Chief among the indirect jobs are Retail Trade (.51 jobs per \$1 million in construction spending), Professional & Technical Services (.35 jobs), and Accommodations and Food Services (.23 jobs). Overall, between the direct construction jobs and indirect jobs, the REMI model estimates 7.20 jobs per \$1 million in construction spending.

highway/transit capital projects combined. The California Infrastructure Coalition, utilizing an IO model, in contrast estimates \$1 billion in highway/transit capital funding will produce 10,165 construction jobs. The Southern California MWD estimates that \$1 billion in capital spending on water projects yields 2,778 construction jobs. The Milken Institute, combining infrastructure types, estimates that each \$1 billion in infrastructure spending by the federal government creates 7,989 construction jobs.⁹ The REMI model utilized by the City and County of San Francisco estimates 4.93 construction jobs for each \$1 million in construction spending, or 4,930 construction jobs for each \$1 billion spent.

The absence of agreement among IO models is one limitation in utilizing one or more of these models for the Capital Plan projections required by this research effort. A second main limitation is the lack of occupational distributions, time period, and journey people/apprentice information included in the IO models. The IO models do not yield the detailed job information on a project level basis.

Going Beyond IO Models: Project by Project Job Projections Undertaken by the Research Team

To develop the level of projections required for most effective workforce planning, the research team went beyond the IO models to detailed project-by-project analyses. The team examined the Capital Plan and identified 204 capital projects included in the Spending Plan representing \$31.7 billion in estimated project values. These 204 projects were analyzed and reduced to a smaller group of 146 projects that provided the basis for calculating the workforce projections. A summary of these projects is set out in Chart 27, grouped among the City and County's seven general or "Enterprise" areas: 1) Public Safety, 2) Health and Human Services, 3) Infrastructure and Streets, 4) Transportation, 5) Recreation, Culture, and Education, 6) Economic and Neighborhood Development, and 7) General Government. The full list of the projects is included in Appendix G.

⁹ The Milken Institute in January 2010 analyzed proposed infrastructure investments totaling \$425.6 billion over 3 years nationwide. The Milken Institute analysis used the Bureau of Economic Analysis Regional Input-Out Modeling System (RIMSII). See Milken Institute, "Jobs for America", Santa Monica, California, January 2010.

Chart 27: Capital Projects in SF Spending Plan Used for Workforce Projections

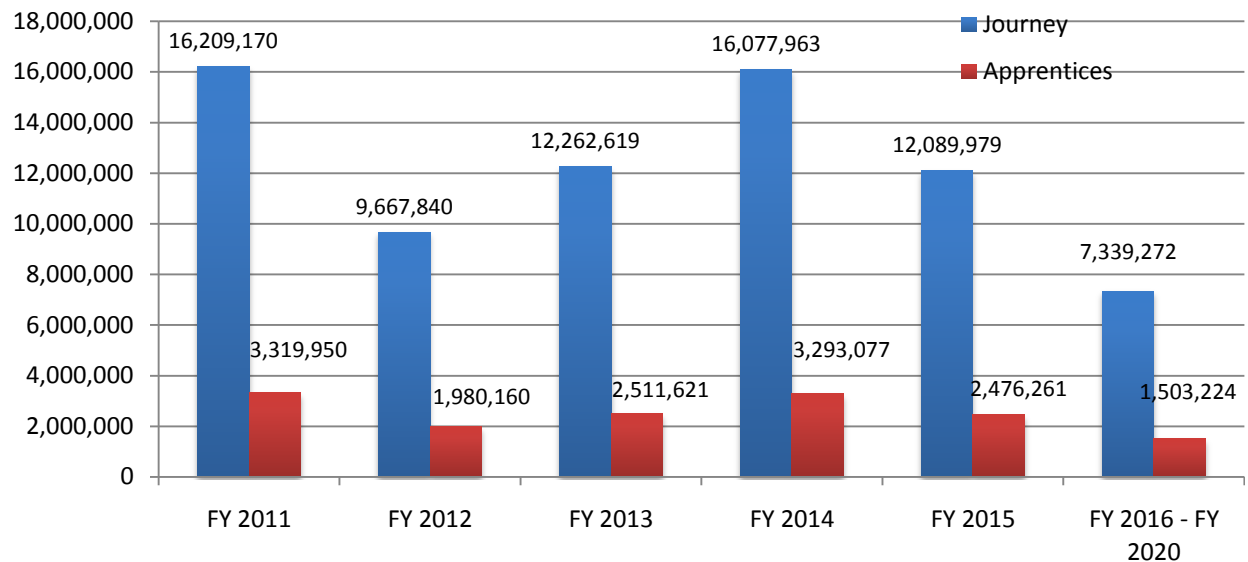
	Funded WFP Projects only	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016 thru FY 2020	Total FY 2016 thru FY 2020
Public Safety	15	\$414,460	\$1,955	\$480,713	\$453,532	\$2,669	\$118,284	\$1,471,613
Health & Human Services	9	\$243,108	\$204,914	\$91,527	\$23,162	\$23,188	\$155,566	\$741,465
Infrastructure & Streets	36	\$2,261,700	\$548,619	\$660,642	\$1,486,051	\$499,001	\$2,738,443	\$8,194,456
Transportation	18	\$1,462,724	\$1,660,501	\$1,939,469	\$2,420,670	\$2,590,465	\$5,681,405	\$15,755,234
Recreation, Culture & Education	15	\$54,016	\$23,547	\$198,471	\$20,941	\$164,124	\$102,513	\$563,612
Economic & Neighborhood Development	44	\$233,205	\$355,754	\$252,791	\$436,317	\$446,122	\$3,027,502	\$4,751,691
General Government	9	\$26,601	\$32,786	\$10,912	\$11,662	\$11,786	\$114,497	\$208,244
Total...	146	\$4,695,814	\$2,828,076	\$3,634,525	\$4,852,335	\$3,737,355	\$11,938,210	\$31,686,315
Total work force projection....								
... Hours		19,529,120	11,648,000	14,774,240	19,371,040	14,566,240	44,212,480	124,101,120
... FTE		9,389	5,600	7,103	9,313	7,003	21,256	59,664

\$ value shown above is in Millions, has to be multiplied by 1,000 to be appropriately expressed.
FY : Fiscal Year (starts July 01st of the year denoted and ends on June 30th of the following year)
WFP : Work Force Projections, Projects which are (1) Funded FY 2011 - FY 2020 & (2) will generate construction activity

As the objective was to produce projections for only skilled trades positions, all project costs associated with professional services (environmental, design/engineering, project and construction management costs) were removed (roughly 21% of project budgets) as were the costs for construction materials and equipment. The pure labor costs for these 146 projects served as the basis for the workforce projections set out by Fiscal Year, journey/apprentice status, and trade/occupation.

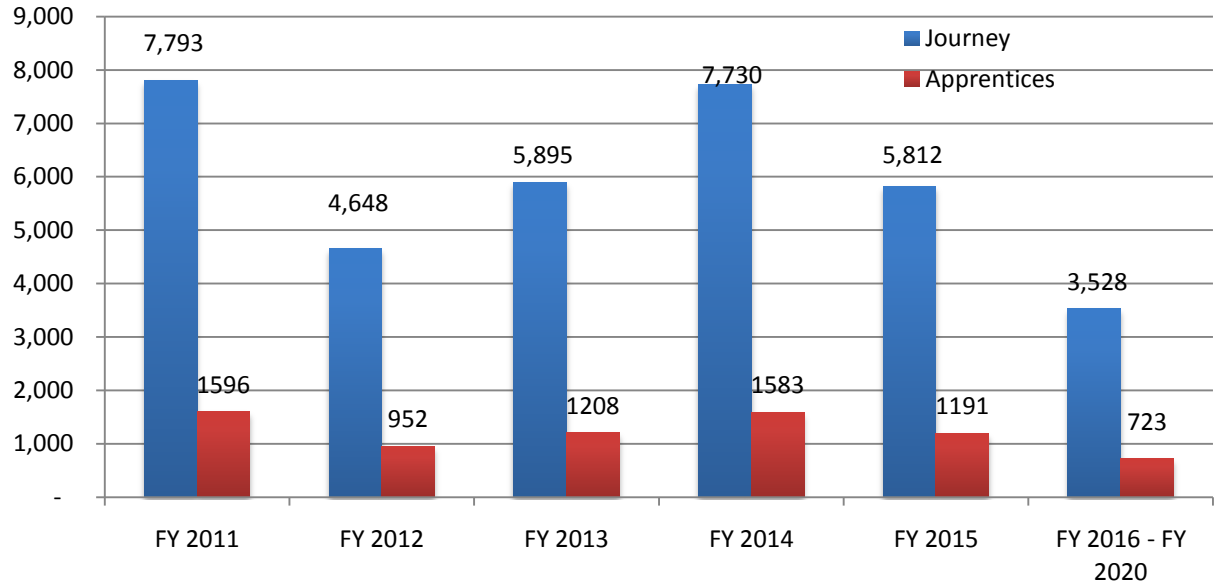
The bulk of the jobs generated by the Capital Plan will be generated within the first five years, FY 2011 through FY 2015. On a yearly basis, the greatest number of jobs will be generated in FY 2011 (9,389 FTEs or 19,529,120 hours) and FY 2014 (9,313 FTEs or 19,371,040 hours). Approximately, 38,408 FTEs (or 79,888,640 hours) will be generated in the first five years, compared to 21,256 FTEs (or 44,212,480 hours) projected for the second five years (Charts 28 and 29).

**Chart 28: Workforce Projections Estimated Journey & Apprentices
Annual Labor Hours, FY 2011-2020**



Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020

**Chart 29: Workforce Projections Estimated Journey & Apprentices
Annual Full Time Equivalents, FY 2011-2020**



Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020

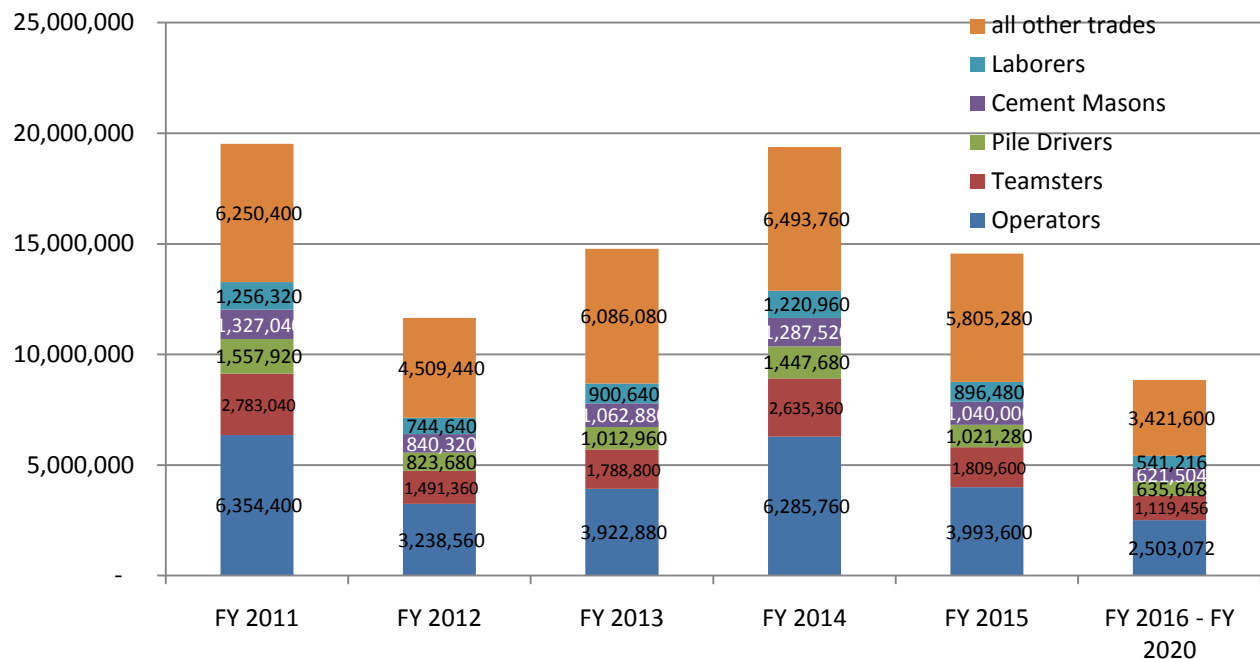
Distribution by Trade

Laborers, Cement Masons, Pile Drivers, Teamsters, and Operating Engineers are the trades that will be in highest demand for the Capital Plan projects. The percentage of workers in each of these trades differs over the years, though the Operating Engineers represent the largest trade

group, followed by the Teamsters, as shown on Charts 30 and 31. Journey level workers will be in greatest demand during the entire 10-year period, comprising 80% of the overall workforce. Apprentices are estimated at approximately 20% (Charts 32 and 33).

It is important to note that three of the top five trades that will be in greatest demand present considerable challenge to efforts to employ apprentices. The teamsters do not currently employ an apprentice program. The laborers have a newly formed apprenticeship program that is still structuring its incorporation and utilization of apprentices. Likewise, for safety reasons the operating engineers restrict apprentice utilization on projects. To add to this, the considerable number of heavy civil projects in the Capital Plan will tend to emphasize the utilization of experienced journey people.

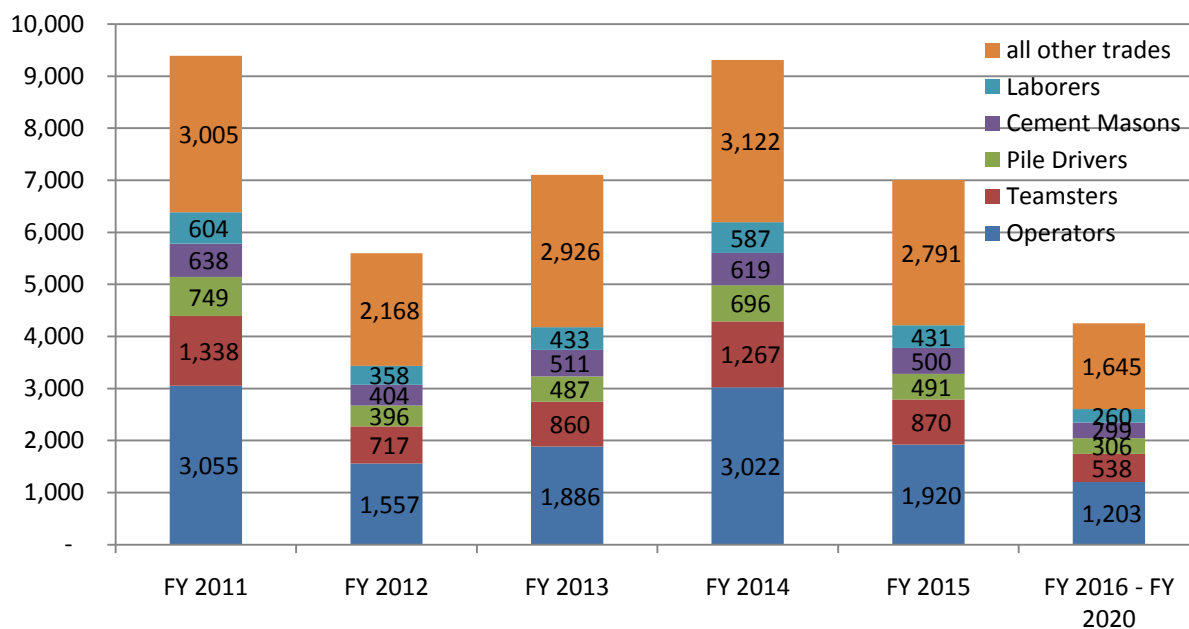
Chart 30: Workforce Projections by Trade
Annual Labor Hours, FY 2011-2020



Totals...	19,529,120	11,648,000	14,774,240	19,371,040	14,566,240	Average: 8,842,496
						Subtotal: 44,212,480

Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020

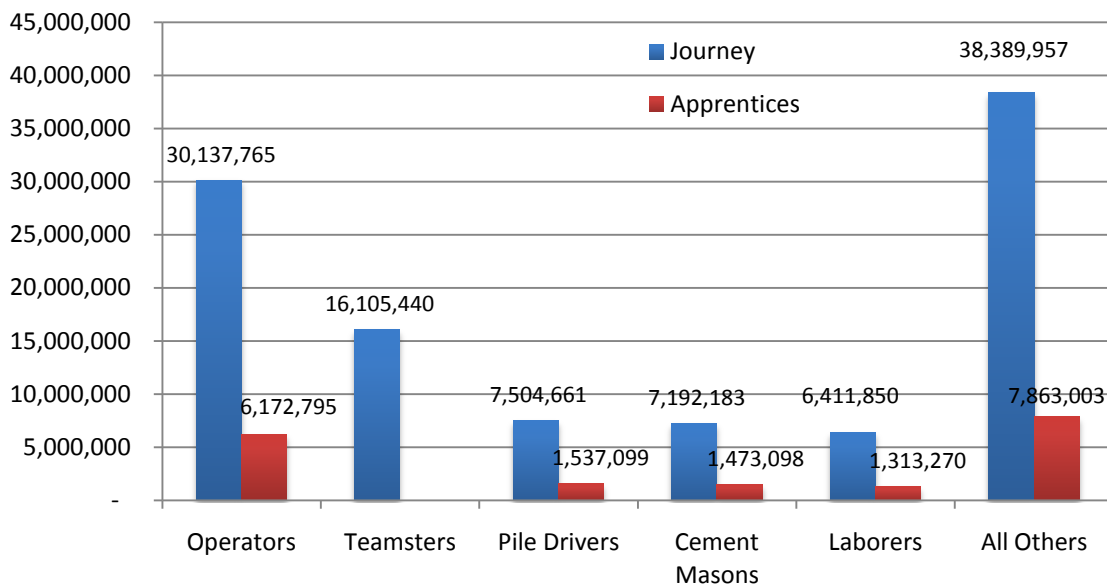
Chart 31: Workforce Projections by Trade
 Full Time Equivalents, FY 2011-2020



Totals...	9,389	5,600	7,103	9,313	7,00	average: 4,251 sub-total: 21,256
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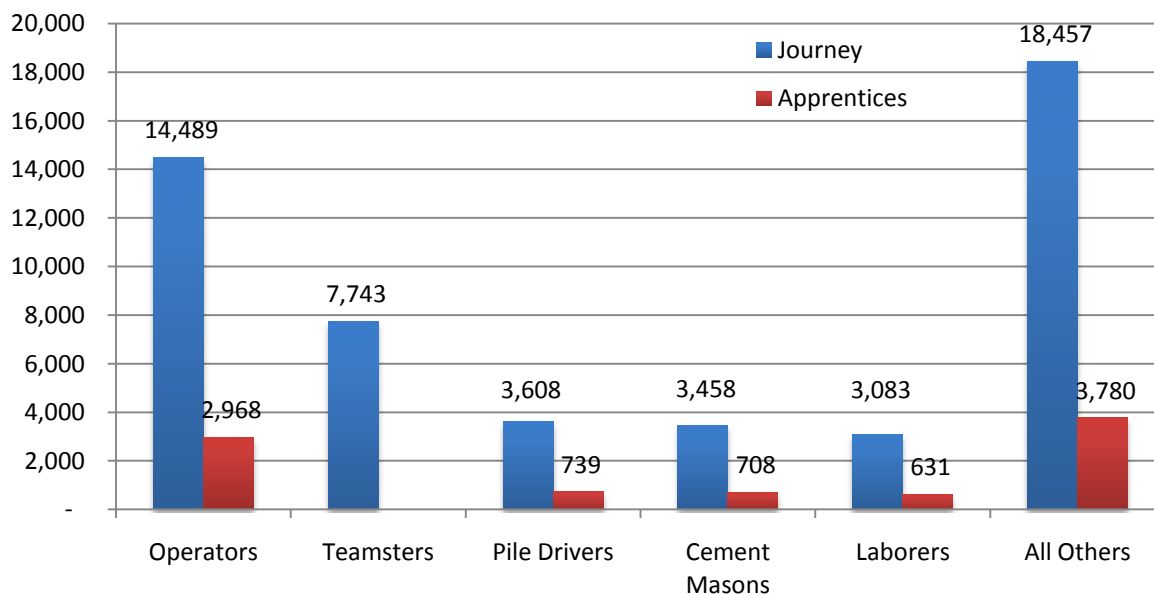
Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020

Chart 32: Workforce Projections for Highest Demand Trades
Journey and Apprentice Hours Fiscal Years 2011-2020

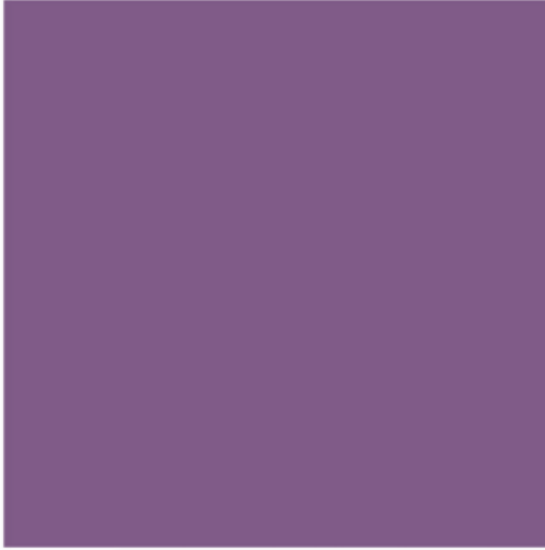


Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020

Chart 33: Workforce Projections for Highest Demand Trades
Journey and Apprentice Full Time Equivalents, FY 2011-2020



Source: City and County of San Francisco Capital Plan, Fiscal Years 2011-2020



4. Local Hire Programs

Section 4: Local Hire Programs and Project Labor Agreements

Obtaining clear and up-to-date information about Local Hire Programs administered by other public entities, including those that operate in conjunction with Project Labor Agreements (PLA) was a City and County priority. The team surveyed Local Hire Programs operated by fourteen different public entities. Four of the public entities surveyed have adopted Local Hire Programs without a PLA (“Traditional Local Hire Programs”): the Cities of Richmond, Oakland and Cleveland, and the West Contra Costa Unified School District. A fifth municipality, the City of Fresno, has a local hire program that is in the proposal stage. The City of New York was included in the survey but was found to have goals regarding the hiring of minorities, women and veterans, but not local residents. Eight other entities surveyed have adopted a PLA that includes local hire goals (“PLA Embedded Local Hire Programs”): City College of San Francisco, Oakland Unified School District, Los Angeles Department of Public Works, Los Angeles Unified School District, Los Angeles Community College District, Community Redevelopment Agency of Los Angeles, Peralta Community College District (Alameda County) and the Port of Oakland.

Traditional Local Hire Programs

Chart 34 summarizes the existing local hire programs that do not utilize a PLA, as well as the proposed non-PLA program in Fresno and the City of New York.

A review of these Local Hire Programs indicates that they are not of one form, but vary widely. They have taken different approaches to key issues of (1) Coverage—Entire City versus zip codes or other sub-units, (2) Percentage Level of Goal(s) for Local Hire, (3) Specific Goal for Apprentices, and (4) Mandatory versus Good Faith/Best Efforts.

Chart 34: Local Hire Programs Not Utilizing a PLA

				Goals:		Performance:		
	Mandatory	Good Faith / Best Efforts	Compliance Monitoring	Overall	Apprentice	Overall	Apprentice	Coverage
Traditional Local Hiring Programs								
1. City of Cleveland	X	X		20% (Hours)		31%		City
2. City of Fresno		X	X	50% (Workers)		Not Available		City
3. City of Oakland		X	X	50% (Hours)	15%	30%	11%	City
4. City of Richmond		X	X	25% (Hours)	Varies	27%	Varies	City
5. West Contra Costa Unified School District		X	X	24% (Hours)	20%	58%	13%	Priority / Tiered
6. City of New York	The City of NY hiring program focuses on hiring of minorities, women and veterans, rather than local residents							

1. Coverage: The coverage of the Local Hire Programs varies from citywide to zip codes, as well as approaches that incorporate several coverage areas in a tiered process. The Cities of Cleveland, Oakland, and Richmond, all have Local Hire Programs that cover residents citywide. In contrast, West Contra Costa Unified School District has a tiered process of

three priority levels: (i) level 1: residents of West Contra Costa County, (ii) level 2: residents of Contra Costa County and (iii) level 3: residents of North Alameda and South Solano counties.

2. Percentage Level of Goal(s) for Local Hire: The local hire goals themselves differ among the public entities. The City of Fresno's proposed local hiring focuses on workers (50% of workers), while the other public entities focus on hours. The goal for hours ranges from 20% for the City of Cleveland, 24% for the West Contra Costa Unified School District to 50% for the City of Oakland.
3. Specific Goal for Apprentices: A number of the public entities set goals not only for construction workers overall, but also specifically for apprentices. The City of Oakland has a 15% goal specifically for apprentices (within but not beyond the 50% City goal).
4. Mandatory versus Good Faith/Best Efforts: Only one of these Local Hire Programs not utilizing a PLA, the City of Cleveland, describes itself as "mandatory". However, examination of the operation of the Cleveland program indicates that the program operates as a good faith and best efforts program.

PLA Embedded Local Hire Programs

Chart 35 summarizes information on the eight Local Hire Programs that utilize a PLA as a vehicle for local hiring. As with the more traditional Local Hire Programs noted above, the PLA programs vary widely in coverage, percentage goal(s), and apprentice goals, as well as community, labor and contractor involvement.

Chart 35: Local Hire Programs Utilizing a PLA

		Good Faith / Best Efforts		Goals:		Performance:		
	Mandatory		Compliance Monitoring	Overall	Apprentice	Overall	Apprentice	Coverage
PLAs with Local Hiring Language								
1. City College of San Francisco		X		40%		15%		City
2. Oakland Unified School District		X	X	50% (Hours)	20%	25%	17%	City / Tiered
3. LA Dept Public Works		X	X	30% (Workers)	No Goal	28%	18%	Zipcodes
4. LA Unified School District		X	X	50% (Workers)	30%	41%	31%	City / Zipcode
5. LA Community College District		X	X	30% (Hours)	30%	30%		City / Zipcode
6. CRA of the City of LA		X	X	30% (Hours)	30-40%	11-47%		City / Zipcode
7. Peralta Community College District		X	X	50% (Hours)	20%	31%	13.5% (49%)	Cities / Tiered
8. Port of Oakland		X	X	50% (Hours)	20%	59%	9%	Cities / Tiered

1. Coverage: The coverage of the PLA embedded programs also varies from citywide to neighborhoods (zip codes), with tiered coverage in several cases. The City College of San Francisco has a Local Hire Program with a PLA that sets hiring goals for residents of the entire city. In contrast, the Port of Oakland has goals that give priority preference to residents of Oakland and next preference to residents of other nearby cities, including San Leandro, Alameda and Emeryville.

2. **Percentage Level:** The goals of the PLA programs include a mix, some focused on hours and others on workers. Five of the programs focus on hours, with percentages from 30% to 50% of hours. Two of the programs focus on numbers of workers, with percentages at 30% and 50%.
3. **Specific Goal for Apprentices:** Six of the programs have separate, specific goals for apprentices. These goals range from 20% to 40%.
4. **Mandatory versus Good Faith/Best Efforts:** None of the programs operating in conjunction with PLAs describe themselves as mandatory. All utilize good faith/best efforts contractual language.
5. **Community Involvement:** Several of the PLA-embedded programs have established advisory committees to design and oversee the hiring program. The City College of San Francisco, the Oakland Unified School District, the Peralta Community College District and the Port of Oakland Local Hire Programs all have advisory committees made up of representatives of management, labor and community. The community representatives are appointed by the agencies and often represent community-based organizations focused on workforce development.
6. **Labor Involvement:** For the PLA embedded programs, labor is involved from the beginning of the negotiations. For some programs there is extensive labor involvement in the advisory committees as well as the monitoring and compliance process.
7. **Contractor Involvement/Education:** The programs at Peralta Community College District, Oakland Unified School District and the Port of Oakland include contractor education. The contractor education is focused on a basic understanding of the particular PLA, union hiring hall and related procedures, and local resources.

Other Findings

Penalties for Contractors

For all fourteen programs surveyed, there is a range of potential penalties for contractors not complying with the requirements of the Local Hire Program. These penalties range from arbitration processes to specific liquidated damages. For example, the West Contra Costa Unified School District has set penalties for each day of proven non-compliance. The Port of Oakland, Peralta Community College District, City College of San Francisco and the Oakland Unified School District have a grievance process that can lead to penalties as determined by an arbitrator. Only three of the fourteen programs have levied penalties of any kind: the Cities of Oakland and Richmond, and the Port of Oakland.

Performance Outcomes

The performance outcomes of the fourteen programs varied, with a number of the programs exceeding goals and others falling short of their goals. The Port of Oakland, for example, exceeded its overall goal of 50% (reaching 59%), but fell short of its apprentice goal of 20% (reaching 9%). The Port of Oakland reached the highest level of local hiring at 59%, followed by the West Contra Costa Unified School District at 58%. Most of the programs fell in the 30% range, though City College of San Francisco was significantly below at 15%. Local Hire

Program outcomes did not seem to be positively impacted by operating in conjunction with a Project Labor Agreement. Those programs operating without a PLA achieved outcomes on par with those operating in conjunction with a Project Labor Agreement.

Cost of Program Administration

Identifying the specific cost of a Local Hire Program is difficult, especially if the program is a part of a Project Labor Agreement. In the Bay Area, the cost for outside consultants to manage PLAs has ranged from \$80,000 to as much as \$400,000 a year, depending on the level of construction activity in a given year. This is because the work for such services is often billed on a time and materials basis as opposed to a flat fee. All of the agencies surveyed in the Bay Area with PLA Embedded Local Hire Programs contract with outside consultants with extensive experience in labor relations and Local Hire Programs to manage the administration of their Project Labor Agreements. The Local Hire Programs are just one component of the agreements. Often, however, in reality a team made up of agency staff and consultants manages these programs.

Project Scope of Work Impact on Local Hiring

The scope of work covered under a Local Hire Program can have an impact on the ability of the contractor to hire local workers, particularly in the utilization of apprentices. For example, in the early years of the Port of Oakland program, seventy percent of the work was heavy civil construction and maritime work. The work was done by Operating Engineers, Laborers and Teamsters. The Operating Engineers have strict limitations on how many, if any, apprentices can perform certain work. The Laborers, at the time, had a new apprenticeship program with very limited numbers in the area and, even now, with different ratio requirements than other trades. The Teamsters have no apprenticeship program.

Unique Component

The Port of Oakland has a unique component known as the Social Justice Trust Fund. Contractors make a contribution of 15 cents per craft hour to the Trust Fund. The funds are used to reduce obstacles to the employment of historically disadvantaged local area residents. The Trustees of the Fund, upon the recommendation of the Social Justice Subcommittee, make grants from the Fund on an annual basis.



5. Policy Issues

Section 5: Policy Issues Regarding Local Hire Raised by the Research Findings

The above four sections summarize the research undertaken for this study. In this final section, the team would like to address certain policy issues raised by the research findings pertinent to Local Hire Policy and Program Development in San Francisco:

▪ *Worker Demand and Local Hire*

At a time when the residential and commercial construction markets have declined statewide in California and locally in San Francisco, public sector capital projects in San Francisco are projected to be a significant source of employment in the near future and over the next decade. The workforce projections included in this study indicate an average of 7,680 FTEs for construction workers will be generated annually on the City and County's capital projects, and these projections do not include work sponsored by the Mayor's Office of Housing, several of the San Francisco Redevelopment Agency projects slated for construction by developers, or any of the work that will be sponsored by the private sector.

Further, the city's construction workforce, both San Francisco resident construction workers and the City and County Craft Union employees, are aging and many will be at retirement age in the next decade. Job openings created by workers leaving the sector will be an important source of employment for both existing workers and new entrants to the industry.

Therefore, there remains a sufficient demand for local construction workers at all levels and trades.

▪ *Worker Supply. Participation of SF Residents on City and County Projects and Local Hire*

The data on recent participation of construction workers on City capital projects from the City's web-based certified payroll tracking and monitoring system indicate that contractors currently are able to meet a 20% resident hiring using only "good faith efforts." However, the probable unemployment rate among resident construction workers that can be inferred from EDD data, anecdotal unemployment information from union locals, the potential reinstatement of resident apprentices that have left the trades due to lack of work, and the limited earnings of a good portion of the resident construction workforce indicate an ample and available supply of resident construction workers that could benefit from an enhanced Local Hire mandate. Moreover, if CityBuild, the City's construction pipeline program serves as a direct pathway to City generated jobs, other local workers will be attracted to these job opportunities in the construction sector as well. While, further supply analysis would be required for more precise availability numbers, the team is confident that there is an ample supply of San Francisco residents to meet local hiring targets of 20%-25% in the first few years under a "mandated" vs. "good faith" program, and that supply can increase over time as residents return to the industry and demand is created for new entrants.

• *City Infrastructure to Expand Workforce Pipeline*

The Office of Economic and Workforce Development and its CityBuild program have put in place the workforce infrastructure required to support an expanded Local Hire Program. The

City has the means to operate an effective pipeline for recruiting, training and placing new entrants into the construction sector as well as to transition incumbent workers into public work. Should the demand increase for more workers, the City has the programs in place that can grow to the scale required to meet the demand.

▪ ***Gender Imbalance and Local Hire***

A review of the characteristics of the four construction workforces in San Francisco indicates very limited participation of women in these workforces. The percentage of women in the San Francisco workforces ranges from 3% among the construction workforce employed in San Francisco and similarly among the resident San Francisco workforce, to 8% among the City and County Craft Union employees.

While women comprise a more promising 10% of all San Francisco resident apprentices, gender equity remains a major issue within the construction skilled trades.

The gender imbalance should be considered in drafting any Local Hire Program for San Francisco, where legally permissible, to attract and retain women in the profession. The City could look to maximize opportunities for women with projects that are federally funded and have goals already in place (6.9% currently) to increase the participation of women in construction.

▪ ***Worker Mobility and Local Hire***

According to union building trades officials the high cost of living in San Francisco, compared to surrounding communities, has led to an exodus of construction workers moving outside of San Francisco. Construction workers who may be raised in San Francisco and trained in San Francisco are moving outside of San Francisco to nearby communities, particularly communities with lower housing costs. This mobility raises equity questions for any Local Hire Program.

What of the construction worker who grows up in San Francisco and then moves to South San Francisco or Oakland or Vallejo for less expensive housing or other reasons? Should this worker be given less consideration in San Francisco jobs than another worker? What if that other worker has moved into the city for just a month or a week? Worker mobility in determining criteria for both initial and ongoing San Francisco residency should be considered in a Local Hire Program.

▪ ***Sustainable Employment and Local Hire***

We assume any Local Hire Program embraces the objective of sustainable employment for local residents. Therefore, it is critical to ensure that contractors and workers can move from project to project and location to location without penalty. Many contractors keep their workforce employed steadily by moving workers among counties in the Bay Area, and even throughout Northern California and beyond. A Local Hire Program must be cognizant of the needs of construction workers and contractors to be employed in multiple counties to ensure sustainable employment and economic viability in the construction sector. As the research indicated, a number of local jurisdictions have Local Hire Programs in effect, including the Cities of Oakland and Richmond, the Port of Oakland, and various school and community college districts.

A Local Hire Program must recognize the benefit of contractors hiring and retaining local workers; utilizing them on multiple projects in multiple locations. The regional and mobile

nature of construction work demands this. Additionally, a Local Hire Program must operate in cooperation and conjunction with other like programs in the region. Measures addressing both these issues are critical to maintaining the economic vitality of the sector.

▪ ***Union Membership and Local Hire***

A further issue raised in local stakeholder presentations has been the unemployment among current union members and how they might be impacted by any Local Hire Program. This is so particularly for union members who do not live in San Francisco, and might find themselves displaced by a Local Hire program, depending on its structure.

Local Hire Program policy makers must remain cognizant of the current unemployment rates among the local unionized construction workforce.

▪ ***Project Labor Agreement (PLA) Impacts and Local Hire***

A research finding that solicited interest during stakeholder meetings was the Local Hire results in cities and counties that utilize a PLA compared to ones that do not. Among the 14 public entities surveyed for this study, the local hire numbers for cities and counties that utilize a PLA were no higher than for those that do not utilize a PLA.

The findings suggest that the structure and implementation of the Local Hire Program may be more important in achieving whatever goals are set than whether or not a PLA is utilized.

▪ ***Trade Distribution and Local Hire***

As indicated in the findings, Carpenters and Laborers currently contribute the highest proportion to the San Francisco resident construction workforce in general and especially on City and County sponsored projects. Likewise, Carpenters offer the greatest number of apprenticeship opportunities to San Francisco residents. Many of the other trades have significantly lower rates of participation by San Francisco residents, so that the existing availability of SF resident workers varies significantly across trades. An overall local hire mandate could be met on some projects by the participation of San Franciscans in one or two trade occupations; increasing work opportunities generally but not broadly. At the same time, the workforce projections tied to the Capital Plan indicate that while Laborers are expected to be one of the trades in highest demand, Operators, Teamsters, Pile Drivers, and Cement Masons will be the top four. Two of these trades (teamsters and operators) offer no or limited opportunities for apprentices.

Emphasis on San Francisco resident participation in a wider distribution of skilled trades, particularly those that are projected to be in highest demand on City and County sponsored projects, should be considered by a Local Hire Program.

Closing

The research in this Final Labor Market Analysis Report of the San Francisco Construction Industry has sought to capture the tumultuous construction employment environment in California today. Simultaneously, the research has also sought to capture the complexity and diversity of the construction workforce in San Francisco as well as the intricacies of Local Hire Policies and Programs in other cities. The research, though, may be best seen as providing a baseline guide for policy and workforce planners. Clearly, the research has assembled and

analyzed data the City and County has not had access to or considered in previous policy efforts. It has also pointed the way towards further discussion and additional analysis.

The study was undertaken in a shortened time period to be available for the Board of Supervisors' and Local Hire Stakeholder Planning Process consideration of a revised Local Hire Policy for San Francisco. Already, Board, City, Labor, Contractor, and Community stakeholders have inquired of additional research in such areas as demographics of low wage earners, numbers and demographics of San Francisco resident union members, ethnic diversity of the construction workforce employed on City and County projects, and the aging of the San Francisco construction workforce.

Participants in upcoming Local Hire discussions in San Francisco may not reach complete consensus on the specifics of policy proposals. However, we believe all stakeholders will agree that all parties are best served by an approach built on the most complete understanding of and data on construction workforce dynamics and the workforce projections associated with upcoming City and County capital works projects. Moreover, presently as a leader in construction job generation, the City and County of San Francisco is in a unique position to play a principal role in shaping and building a qualified and diverse locally based construction workforce that will contribute to meeting its future workforce needs and benefit all San Franciscans.



Appendices

Appendices

Appendix A. Construction Workforce Employed in SF by Gender and Race for All Trades

Occupational Category	Estimated San Francisco Employment 2010	By Gender		By Race				
		Male	Female	White	Latino	African American	Asian & Pacific Islander	Other Races
Brickmasons, Blockmasons, and Stonemasons	127	95	32	95	32	0	0	0
Carpenters	4,622	4,544	78	2,194	1,254	78	979	118
Carpet Installers, Floor, Tile Installers	281	281	0	102	102	0	77	0
Cement, Concrete, Terrazzo Workers	337	337	0	0	193	96	48	0
Construction Laborers	2,795	2,717	78	650	1,457	157	531	0
Operating Engineers	213	190	24	71	119	24	0	0
Drywall and Ceiling Tile Installers	720	720	0	55	665	0	0	0
Electricians	1,119	1,083	36	612	210	52	227	17
Glaziers	83	83	0	50	17	0	17	0
Insulation Workers, Floor, Ceiling, and Wall	49	49	0	49	0	0	0	0
Painters, Construction and Maintenance	1,459	1,367	93	524	638	23	251	23
Plumbers, Pipefitters, and Steamfitters	1,023	1,023	0	572	211	0	241	0
Plasterers and Stucco Masons	108	108	0	18	90	0	0	0
Reinforcing Iron & Rebar Workers	52	52	0	0	52	0	0	0
Roofers	325	325	0	0	325	0	0	0
Sheet Metal Workers	269	269	0	215	27	0	27	0
Structural Iron and Steel Workers	74	65	9	46	0	9	19	0
Helpers, Construction Trades	359	359	0	0	359	0	0	0
Construction and Building Inspectors	192	162	29	103	29	0	59	0
Elevator Installers & Repairers	208	182	26	156	26	0	26	0
Hazardous Materials Removal Workers	80	80	0	80	0	0	0	0
Rail-Track Laying and Maintenance Equipment Oper	26	26	0	26	0	0	0	0
Miscellaneous Construction and Related Workers	105	105	0	53	26	0	26	0
Total	14,629	14,225	405	5,673	5,830	440	2,528	158

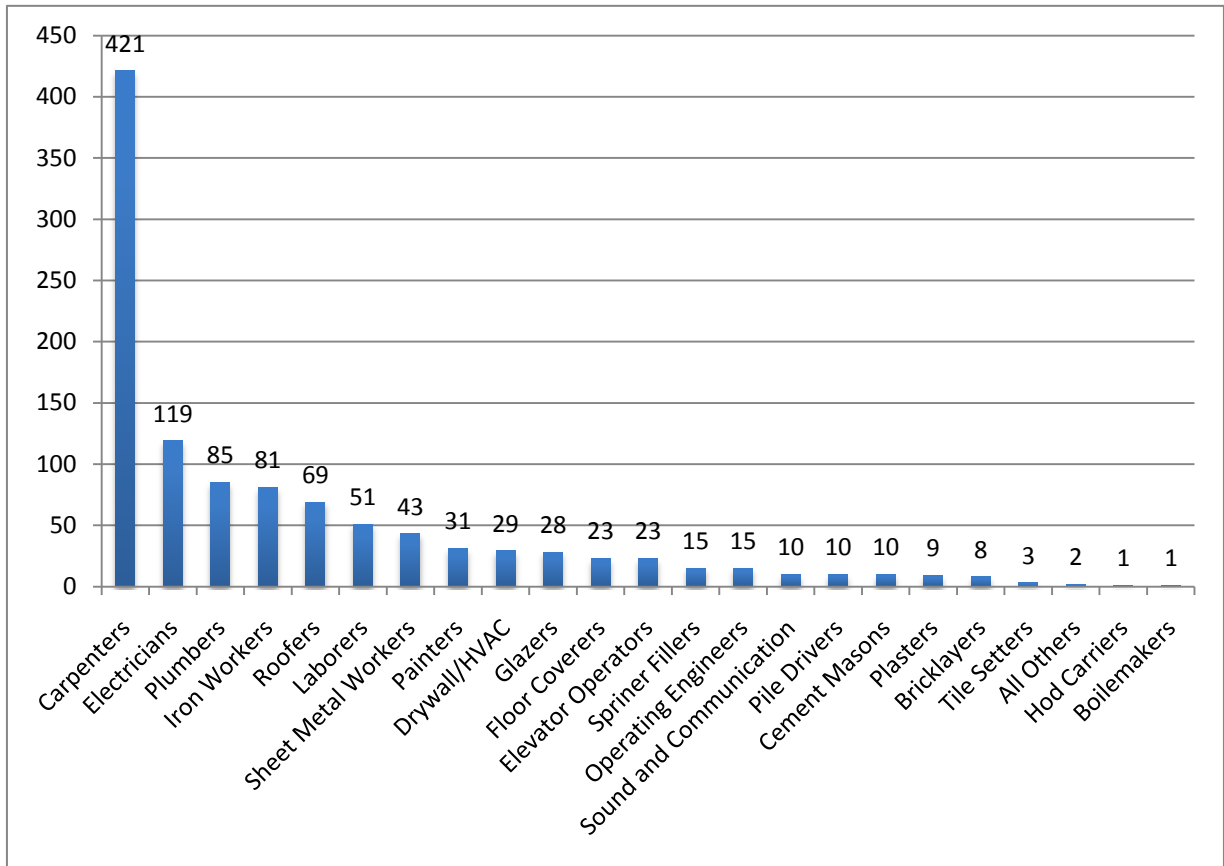
Source: American Community Survey & EDD, June 2010

Appendix B. SF Resident Construction Workers by Gender and Race for all Trades

Occupational Category	Total San Francisco Residents	By Gender		By Race/Ethnicity				
		Male	Female	White	Latino	African American	Asian & Pacific Islander	Other Races
Brickmasons, Blockmasons, and Stonemasons	44	44	0	22	0	0	22	0
Carpenters	1,914	1,914	0	924	308	44	638	0
Carpet Installers, Floor, Tile Installers	132	132	0	22	88	0	22	0
Cement, Concrete, Terrazzo Workers	66	66	0	0	0	44	22	0
Construction Laborers	2,442	2,376	66	506	1,034	176	726	0
Operating Engineers	22	22	0	22	0	0	0	0
Drywall and Ceiling Tile Installers	88	88	0	22	44	22	0	0
Electricians	814	748	66	374	132	22	286	0
Painters, Construction and Maintenance	1,122	1,034	88	410	388	43	259	22
Plumbers, Pipefitters, and Steamfitters	484	484	0	132	132	22	198	0
Plasterers and Stucco Masons	110	110	0	0	88	22	0	0
Reinforcing Iron & Rebar Workers	22	22	0	0	22	0	0	0
Roofers	154	154	0	22	132	0	0	0
Sheet Metal Workers	66	66	0	22	0	22	22	0
Structural Iron and Steel Workers	88	66	22	22	0	0	66	0
Helpers, Construction Trades	44	44	0	0	22	0	22	0
Construction and Building Inspectors	154	154	0	66	22	0	66	0
Elevator Installers & Repairers	44	44	0	44	0	0	0	0
Hazardous Materials Removal Workers	22	22	0	0	0	0	22	0
Miscellaneous Construction and Related Workers	22	22	0	22	0	0	0	0
Total	7,855	7,613	242	2,632	2,413	417	2,371	22

Source: American Community Survey & EDD, June 2010

Appendix C: *SF Resident Active Apprentices for All Trades*



Source: State of California Department of Industrial Relations, Division of Apprenticeship Standards, June 2011

Appendix D: Weeks Worked Per Year and Weekly Hours of SF Resident Construction Workers Earning Less than \$30,000

	More than 30 hours per week	Fewer than 30 hours per week	Total
More than 30 weeks per year	873	104	977
Fewer than 30 weeks per year	237	76	313
Total	1,110	180	1,290

	More than 30 hours per week	Fewer than 30 hours per week	Total
More than 30 weeks per year	67.6%	8.1%	75.7%
Fewer than 30 weeks per year	18.4%	5.9%	24.3%
Total	86.0%	14.0%	100.0%

Source: American Community Survey, June 2010

Appendix E: City and County SF Craft Union Employees for all Trades

Union	Total	Female	Percent	Male	Percent	Native American	Asian / Pacific Islander	Black	Filipino	Hispanic	Non-White	Percent	White	Percent
Operating Engineers, Local 3	56	2	3.57%	54	96.43%		1	3	6	8	18	32.14%	38	67.86%
Painters, Local 1176	113	3	2.65%	110	97.35%		1	7	4	39	51	45.13%	62	54.87%
Electrical Workers, Local 6	735	25	3.40%	710	96.60%	5	236	37	99	60	437	59.46%	298	40.54%
BrickLayers, Local 3	10			10	100.00%		1			1	2	20.00%	8	80.00%
Carpet, Linoleum & Soft Tile	5			5	100.00%						0	0.00%	5	100.00%
Theatrical Stage Emp, Local 16	50	11	22.00%	39	78.00%		4	1		3	8	16.00%	42	84.00%
Pile Drivers, Local 34	13	2	15.38%	11	84.62%			1	1		2	15.38%	11	84.62%
Hod Carriers, Local 36	6			6	100.00%					2	2	33.33%	4	66.67%
Plumbers, Local 38	308	19	6.17%	289	93.83%	1	40	22	10	38	111	36.04%	197	63.96%
Stationary Engineers, Local 39	632	44	6.96%	588	93.04%	4	81	84	86	82	337	53.32%	295	46.68%
Roofers, Local 40	8	1	12.50%	7	87.50%	1				2	3	37.50%	5	62.50%
Sheet Metal Workers, Local 104	42	1	2.38%	41	97.62%	1	9	1	1	7	19	45.24%	23	54.76%
Auto Mechanics, Lodge 1414	374	3	0.80%	371	99.20%	6	112	21	26	49	214	57.22%	160	42.78%
Teamsters, Local 853	179	8	4.47%	171	95.53%	4	11	19	4	36	74	41.34%	105	58.66%
Carpenters, Local 22	104	1	0.96%	103	99.04%		14	3		15	32	30.77%	72	69.23%
Laborers Int, Local 261	973	150	15.42%	823	84.58%	8	82	241	38	198	567	58.27%	406	41.73%
Iron Workers, Local 377	16			16	100.00%		3			2	5	31.25%	11	68.75%
Cement Masons, Local 300 (580)	27	3	11.11%	24	88.89%		2	11		9	22	81.48%	5	18.52%
Glaziers, Local 718	12			12	100.00%			1		2	3	25.00%	9	75.00%
SF Bldg Insptors, Carp - 6332	2			2	100.00%						0	0.00%	2	100.00%
SF Building Inspectors-6331/33	54	6	11.11%	48	88.89%		12	2	1	2	17	31.48%	37	68.52%
Trades Total	3719	279	7.50%	3440	92.50%	30	609	454	276	555	1924	51.73%	1,795	48.27%

Source: City and County of San Francisco Department of Human Resources, Workforce Development, 2009

Appendix F: SF Resident Journey Persons and Apprentices Working on City & County Projects by Hours for All Trades

Trade	Total Hours			Total Journeymen			Apprentice Hours		
	Total	San Francisco	SF County %	Total	SF Journeymen	SF Journey %	Total Apprentices	SF Apprentices	SF County Apprentices %
Residential Sheet Metal Work	240	119	49%	240	119	49%			
Truck drivers	849	352	41%	849	352	41%			
Power Equipment Operator	9,102	3,029	33%	9,078	3,004	33%	25	25	100%
Tile Finisher	30,998	10,004	32%	30,474	10,004	33%	525	0	0%
Glazier	79,040	22,139	28%	54,972	9,726	18%	24,069	12,413	52%
Carpenter	584,014	161,495	28%	460,669	84,321	18%	123,345	77,174	63%
Field Supervisor	7,221	1,763	24%	7,080	1,763	25%	142		0%
Plumber	436,995	104,962	24%	300,264	47,645	16%	136,731	57,317	42%
Soft Floor Layer	48,422	10,709	22%	36,172	5,222	14%	12,250	5,262	
Painter	104,793	20,942	20%	83,974	11,236	13%	20,819	9,706	47%
Sheet Metal Workers	219,911	42,376	19%	170,742	19,351	11%	49,169	23,025	47%
Laborer	1,070,904	201,556	19%	1,023,037	195,863	19%	47,867	5,693	12%
Iron Workers	294,930	51,282	17%	227,049	29,860	13%	67,881	21,423	32%
Roofer	43,702	6,973	16%	28,318	3,912	14%	15,384	3,061	20%
Electrician	483,788	70,097	14%	366,949	49,918	14%	116,840	20,179	17%
Drywall Finisher/Taper	409,031	58,573	14%	342,817	34,475	10%	66,214	24,098	36%
Cement Mason	70,576	8,490	12%	66,733	8,176	12%	3,844	314	8%
Landscape Laborer	511	58	11%	511	58	11%			
Teamster	28,580	2,995	10%	28,580	2,995	10%			
Light Fixture Maintenance	7,495	698	9%	7,495	698	9%			
Brick Tender / Layer	7,952	729	9%	6,808	305	4%	1,144	424	37%
Operating Engineers	251,502	21,737	9%	241,132	21,271	9%	10,371	466	4%
Elevator Construction/Mecha	23,953	1,848	8%	15,523	649	4%	8,430	1,199	
Pile driver	8,214	630	8%	8,002	514	6%	212	116	55%
Plasterer	61,061	3,544	6%	57,886	2,703	5%	3,174	841	26%
Driver	14,386	724	5%	14,386	724	5%			
Sprinkler Fitter (FIRE)	965	4	0%	965	4	0%			
Boilermaker/Blacksmith	5,535	8	0%	5,535	8	0%			
Mason Tender, Brick Layer	1,558		0%	1,558	0	0%			
Tree Trimmer	943		0%	943	0	0%			
Slurry Seal Worker	710		0%	710	0	0%			
Tunnel Worker	635		0%	635	0	0%			
Communications System	627		0%	627	0	0%			
Telecommunications Technici	368		0%	368	0	0%			
Floor Preparation Worker	330		0%	300	0	0%	30		0%
Water Well Driller	309		0%	309	0	0%			

Source: City and County Web-based Certified Payroll Tracking System, July 2009-2010

Appendix G: List of San Francisco Capital Projects Used for Workforce Projections

Public Safety	Regional - Water System Improvement Program	Caltrain - Replace SF Bridges - 22nd, 23rd, & Paul Ave
Critical Firefighting Facilities & Infrastructure	Regional - Storage	Caltrain - Rolling Stock Replacement
Auxiliary Water Supply System Core Facilities Upgrade	Regional - Watershed/Right of Way Management	Caltrain - Electrification Infrastructure
Public Safety Building - New Mission Bay Fire Station	Regional - Treatment Facilities	Caltrain - Other
State of good repair renewal	Regional - Water Conveyance	Transbay Terminal - phase I
Consolidation of Family Court Services at YGC Campus	Regional - Operation Facilities Upgrade	Transbay Terminal - phase II
Police Station Renewals & Improvements	Local - Water Conveyance/Distribution System	Recreation, Culture & Education
ADA Transition Plan Improvements	Local - Water Meter System Enhancement	State of good repair renewal - Proposed Users
Public Safety Building - SFPD HQ & Southern Station	Local - Treasure Island	ADA Transition Plan Improvements
Forensic Sciences Center (Crime Lab/Medical Examiner)	Sewer System Improvement Program - Planning	State of good repair renewal - Proposed Users
HOJ Traffic Division Relocation	Odor Control	State of good repair renewal - Proposed Users
State of good repair renewal - Proposed Uses	Treatment Facilities	ADA Transition Plan Improvements
ADA Transition Plan Improvements	Pump Stations	State of good repair renewal - Proposed Users
County Jails 1 & 2 Replacement (HOJ)	Sewer/Collection System	State of good repair renewal - Proposed Users
County Jail 3 Demolition	Treasure Island	Systemwide Modernization Program
Auxiliary Water Supply System Pipeline Improvements	Hetchy Power - Streetlight	Neighborhood Park Program
Health & Human Services	Hetchy Power - Transmission/Distribution	Park Restroom Rehabilitation Program
State of good repair renewal - Proposed Uses	Hetchy Power - Renewable/Generation	Park Trail Reconstruction Program
ADA Transition Plan Improvements	Hetchy Power - Energy Efficiency	Park Forestry Program
SFGH Rebuild	Hetchy Power - Treasure Island	Economic & Neighborhood Development
Seismic Bracing of Utilities at SFGH Campus	Hetchy Water - Communications/Security/Miscellaneous	Facilities - Fisherman's Wharf
Data Center Relocation and Utility Upgrades	Hetchy Water - Reservoirs/Dams	Facilities - Northeast Waterfront
Sunset Mental Health Center Renovation	Hetchy Water - Water Transmission	Facilities - Ferry Building Area
State of good repair renewal - Proposed Uses	Hetchy Water - Power Infrastructure	Facilities - South Beach
ADA Transition Plan Improvements	Hetchy Water - Facilities/Roads/Right of Way	Facilities - China Basin
State of good repair renewal - Proposed Uses	Transportation	Facilities - Southern Waterfront
Infrastructure & Streets	Equipment Program	PAP - Dredging
Street Resurfacing	Facilities Program	PAP - Facility Condition Survey
Curbs Ramps (ADA Right of Way Transition Plan)	Fleet Program	PAP - Emergency Facilities Repair
Street Structures	Infrastructure Program	PAP - Special Area Plan
Sidewalk Repair	Capital Plan - Airfield	PAP - Pile/Wharf Substructure Reinvestment
Street Tree Maintenance	Capital Plan - Airport Support	Renewals
Street Tree Replacement & Establishment	Capital Plan - Groundside	Modernizations & Aesthetic Improvements
Median Maintenance and Irrigation System Repair	Capital Plan - Terminals	
Plaza Inspection & Repair	Capital Plan - Utilities	
Doyle Drive Replacement Project	Capital Plan - West of Bayshore	
Great Streets Program	BRT - Van Ness BRT	
Better Market Street	BRT - Geary BRT	

Continued next page...

Appendix G: List of San Francisco Capital Projects Used for Workforce Projections – continued

Infrastructure Costs		Program Administration
Affordable Housing		Recreation & Parks Department
Other Costs (Entitlement, Marketing, Project Management, et al)		Department of Public Works
Inflation to Costs		Municipal Transportation Agency
Recreation & Parks Department		Department of Children, Youth, and their Families
Department of Public Works		Library Commission
Library Commission		Program Administration
		Recreation & Parks Department
Program Administration		Department of Public Works
Recreation & Parks Department		Municipal Transportation Agency
Department of Public Works		Department of Children, Youth, and their Families
Municipal Transportation Agency		Library Commission
Department of Children, Youth, and their Families		Program Administration
Library Commission		Hunter's Point
		General Government
		State of good repair renewal - Proposed Users
		State of good repair renewal - Proposed Users
		ADA Transition Plan Improvements
		Data Center Relocation
		State of good repair renewal - Proposed Users
		State of good repair renewal - Civic Center Office Facilities
		ADA Transition Plan Improvements
		Wholesale Produce Market Expansion
		Hall of Justice Interim Improvement Program

Appendix H: Methodology for US Census/American Community Survey and State of California Employment Development Department (EDD) Data

We began with the most recent (June 2010) EDD payroll data for the estimated number of construction sector jobs in the San Francisco Metropolitan Statistical Area (MSA). The MSA includes San Francisco, San Mateo, and Marin counties. To estimate the number of these jobs in San Francisco County, we used the U.S. Census Bureau's County Business Patterns data from 2000 to 2007 to determine the relative proportion of San Francisco MSA construction jobs that were located in San Francisco County (49.7%). From this, we estimated the number of construction jobs located in San Francisco as of June 2010 (14,629) as 49.7% of the total MSA jobs (29,224).

We also used individual responses to the U.S. Census American Community Survey (ACS) available as micro-data from the University of Minnesota's Minnesota Population Center's IPUMS-USA project. Focusing on the most recent years available, 2006-2008, we extracted ACS data for all respondents working in construction jobs who were either employed in San Francisco, or lived in San Francisco. In this sample, there were a total of 599 construction workers employed in San Francisco County, and a total of 358 construction workers living in San Francisco. The self-reported individual responses of these workers to the survey questions provided us with a wealth of information on the individual characteristics of the construction workers in this sample. This included information on: occupation by trade, race/ethnicity, gender, age, county of employment, county of residence, annual earnings, weeks worked per year, and hours worked per week.

In combining these two sources of data, we were able to derive a profile of the San Francisco Construction Workforce by applying percentages from the ACS sample for specific characteristics to the EDD payroll estimates of the total number of persons employed in construction. For example, in the ACS sample, 110 out of a total of 358 construction workers living in San Francisco self-identified as being Latino (30.8%). We applied this percent to the 7,855 construction workers living in San Francisco to obtain an estimate of 2,413 Latino workers living in San Francisco. All other characteristics for the estimated 14,629 construction workers working in San Francisco and the 7,855 living in San Francisco were derived in a similar fashion.

Appendix I: Methodology for City and County Web-based Certified Payroll Tracking System Data

The City and County Web-based Certified Payroll Tracking System, also known as the Elation Systems, is a service used by San Francisco City and County agencies to keep track of all payroll and compliance records. The agencies that use such data include Mayor's Office of Housing (MOH), Department of Public Works (DPW), Department of Public Health (DPH), Municipal Transportation Agency (MTA), Port of San Francisco (PORT), Public Utilities Commission (PUC), San Francisco International Airport (SFO), and the San Francisco Redevelopment Agency (SFRA).

Using the certified payroll tracking system, the Labor Market Analysis Team was able to access payroll data on all San Francisco City and County projects. The data was used to compare hourly work done by San Francisco residents versus non-residents. The data was categorized by trades, projects, zip codes, and gender.

Project data broken down by journey-people and apprentices was based solely on hours worked from July 2009 to July 2010. July 2009 was selected as the starting date because most of the payroll data before that date has yet to be inputted into the system. Data on the total counts of workers was only available by zip code but not specifically for journey-people and apprentices, therefore total counts could not be broken down journey-people and apprentices.

Of the total hours worked on San Francisco City and County construction projects between July 2009 and July 2010, percentages were used to breakdown the amount of hours worked by San Francisco resident and non-resident journey and apprentice workers. The same method was used for breaking down percentages by trades for San Francisco resident and non-resident journey and apprentice workers.

Appendix J: Methodology for Workforce Projections

To develop the level of projections most effective for workforce planning, the research team went beyond the Input Output (I/O) models traditionally used by planners and public agencies. Adopting a construction focused, pragmatic approach, the research team closely reviewed the City and County of San Francisco Capital Plan, Fiscal Years 2011-2020. We identified 204 capital projects included in the Capital Plan's Spending Plan, representing \$31.7 billion in estimated project values (See note at end of Appendix N regarding Funding Plan v. Spending Plan). These 204 projects were then analyzed based on two factors: construction worthiness and FY 2011 thru FY 2020 implementation. Construction worthiness refers to whether the project was actually a construction project resulting in a need for a construction skilled trades workforce, rather than a study or assessment type project. FY 2011 thru FY 2020 simply means that only the projects that would be implemented within the timeframe of FY 2011 through FY 2020 were taken into consideration; not those projects that extended well beyond 2020 or were initiated far in advance of July 2011. Once these two criteria were applied, 146 projects emerged that then served as the basis for the workforce projections.

The Capital Plan organizes all of its projects within seven Enterprise groups: 1) Public Safety, 2) Health and Human Services, 3) Infrastructure & Streets, 4) Transportation, 5) Recreation, Culture and Education, 6) Economic & Community Development, and 7) General Government. The 146 projects used in calculating the workforce projections were first placed within their Enterprise categories (for tracking and subsequent reporting purposes), and secondly grouped according to similar project types to include: Aprons/Runways/Wharfs, Buildings, Civil, Demolition, Elevated Structures, Mechanical, Electrical, Plumbing (MEP) Buildings, and Utilities. Then, applying industry experience and standards, the estimated project values were separated between hard costs (construction, labor and contingency costs) and soft costs (professional services, agency labor and other supportive indirect labor costs).

The identified hard costs were similarly broken down into construction labor costs and construction materials/equipment costs. The ratio of these breakdowns varied according to project type. For example, using industry standards adjusted for SF labor costs, Buildings given a 2/3 to 1/3 ratio. That is, 2/3 of the hard costs were allotted to construction materials/equipment cost and 1/3 was allotted to labor. However, for Utilities projects, a 50/50 ratio was more likely. Next, rates of craft participation were for each project type were calculated using construction industry standards adjusted for local building practices and conditions. These rates of participation were summarized into trade-based categories giving us the workforce projections. These initial projections were further analyzed: an annualized adjusted labor rate and 2,080 work hours were applied,

resulting in the total number of Full Time Employees (FTEs) categorized by trade and fiscal year.

Note: The workforce projections are based on the Capital Plan's Spending Plan rather than the Funding Plan for two reasons.

Appendix C. The workforce projection is an estimate and so is the Spending Plan, that is, what the City Enterprise groups would like to see come to fruition for the projects outlined under their relevant Departments, and

Appendix D. The Capital Plan lays out the projects at an Enterprise level, Departmental and Project level within the Spending Plan (estimated at \$31.7Billion), providing more detailed financial information for all of the proposed projects. However, the Funding Plan (estimated at \$26.9 Billion) is laid out at the Enterprise and only somewhat at the Department level. The Funding Plan is not project specific as the monies which are being allocated at the Enterprise and Department levels are spread across multiple sources which can get quite complex. In the Funding Plan there is simply less information available that can be utilized to estimate project type, construction labor cost and trade participation over

Appendix K: Methodology for Local Hire Program

In researching Local Hiring Programs, the team reviewed fourteen programs operated by public agencies in northern and southern California as well as programs in Cleveland, Ohio and New York City. Four the programs had adopted local hiring programs (“traditional”); one had proposed program; and one had a program with hiring goals for minorities, women, and veterans but not local residents. Eight other programs were local hiring programs that operated in conjunction with Project Labor Agreements (“PLA embedded”).

The team collected the data for each of the programs in each of the categories below. In some instances, additional data was obtained and for others the data was not able to be collected with the timeframe of the study. Although the team came to the project with extensive experience in developing and managing both traditional and PLA embedded local hiring programs, we made a concerted attempt to let the analysis and data speak for themselves.

- History/Year Established
- Jurisdiction/Coverage
- Goals/Standards for Local Hiring
- Community Involvement
- Labor Involvement
- Contractor Involvement/Resistance
- Costs/Staffing
- Unique Components
- Compliance/Enforcement
- Project/Scope of Work Impact on Local Hiring
- Performance to Date Relative to Goals/Standards for Local Hiring
- Lessons Learned

In completing its program reviews, the team:

1. Examined the written policies associated with each of the programs.
2. Contacted Local Hiring Program staff via email and telephone calls to query them about their programs.
3. Completed several face-to-face interviews to collect information about the programs.
4. Reviewed program reports produced internally by the programs as well as reports completed by outside entities.
5. The data collected was then categorized, analyzed for trends, and the findings summarized.

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